SUPER®

SUPER® PDSLM

USER'S MANUAL

Revision 1.0a

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software, if any, and documentation may not, in whole or in part, be copied, photocopied, reproduced, translated or reduced to any medium or machine without prior written consent.

IN NO EVENT WILL SUPER MICRO COMPUTER, INC. BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPER MICRO COMPUTER, INC. SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Super Micro's total liability for all claims will not exceed the price paid for the hardware product.

FCC Statement: Information on FCC compliance of this motherboard can be found on Supermicro's web site at www.supermicro.com.

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate"

WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

Manual Revision 1.0a

Release Date: August 27, 2008

Printed in the United States of America

Preface

About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPER® PDSLM motherboard. The PDSLM supports a single Intel Core2 Duo or a Core Solo Processor at system bus speeds of up to 667 MHz. The Intel Core2 Duo and Core Solo Processors are housed in a Micro Flip-Chip Pin Grid Array (Micro-FCPGA) package seated in an mPGA478M socket. With support of the Dual-Core Technology, Intel Wide Dynamic Execution, Intel Advanced Smart Cache, Intel Advanced Digital Media Boost, Intel Smart Memory Access, and the Matrix Storage Technology, the PDSLM delivers unparalleled system performance and great power efficiency in a slim size package. Please refer to the motherboard specifications pages on our web site (http://www.supermicro.com/products) for updates or visit Intel's web site for processor support. This product is intended to be professionally installed.

Manual Organization

Chapter 1 describes the features, specifications and performance of the PDSLM motherboard and provides detailed information about the chipset.

Chapter 2 provides hardware installation instructions. Read this chapter when installing the processor, memory modules and other hardware components into the system. If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for the video, the memory and the system setup.

Chapter 4 includes an introduction to the BIOS and provides detailed information on running the CMOS Setup utility.

Appendix A provides BIOS POST Messages.

Appendix B lists BIOS POST Codes.

Appendix C lists Software Installation Instructions.

Conventions Used in this Manual

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself:

Danger/Caution: Instructions to be strictly followed to prevent catastrophic system failure or to avoid bodily injury

Warning: Important information given to prevent faulty installation and to avoid damage to the motherboard and the components

Note: Additional Information given to ensure proper component installation and correct system setup

Table of Contents

Preface

Chapter 1: Introduction

Chapter 2: Installation

Chapter 3: Troubleshooting

Chapter 4: BIOS

Appendices:

Chapter 1

Introduction

1-1 Overview

Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance.

Please check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

All the following items are included in the shipping package.

One (1) Supermicro Mainboard

One (1) Supermicro CD containing drivers and utilities

One (1) User's/BIOS Manual (Optional)

Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc.
	980 Rock Ave.
	San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information)
	support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

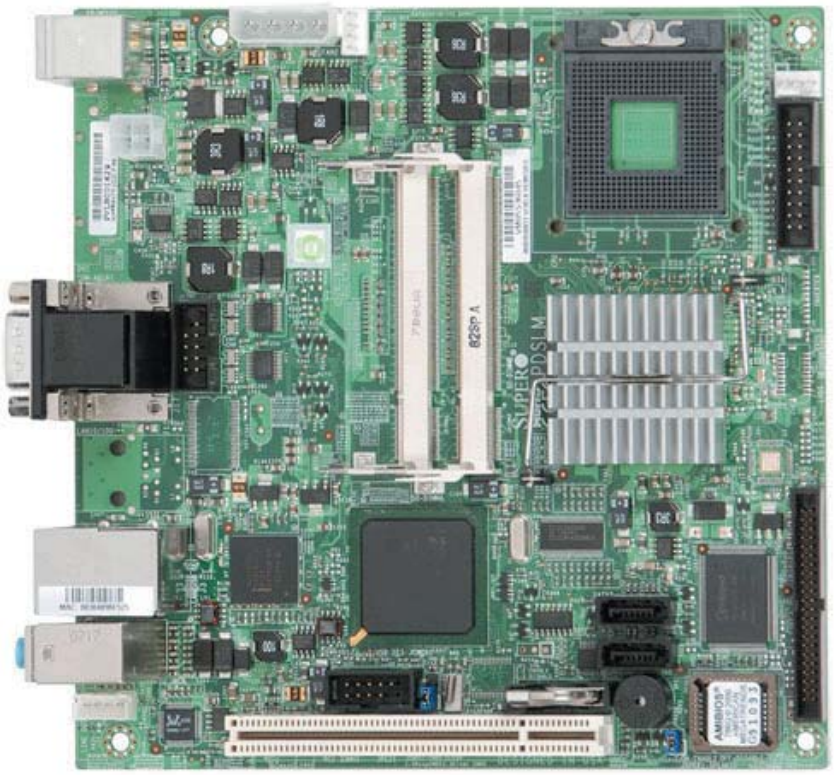
Europe

Address:	Super Micro Computer B.V.
	Het Sterrenbeeld 28, 5215 ML
	's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information)
	support@supermicro.nl (Technical Support)
	rma@supermicro.nl (Customer Support)

Asia-Pacific

Address:	Super Micro Computer, Inc.
	4F, No. 232-1, Liancheng Rd.
	Chung-Ho 235, Taipei County
	Taiwan, R.O.C.
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3991
Web Site:	www.supermicro.com.tw
Technical Support:	
Email:	support@supermicro.com.tw
Tel:	886-2-82261900

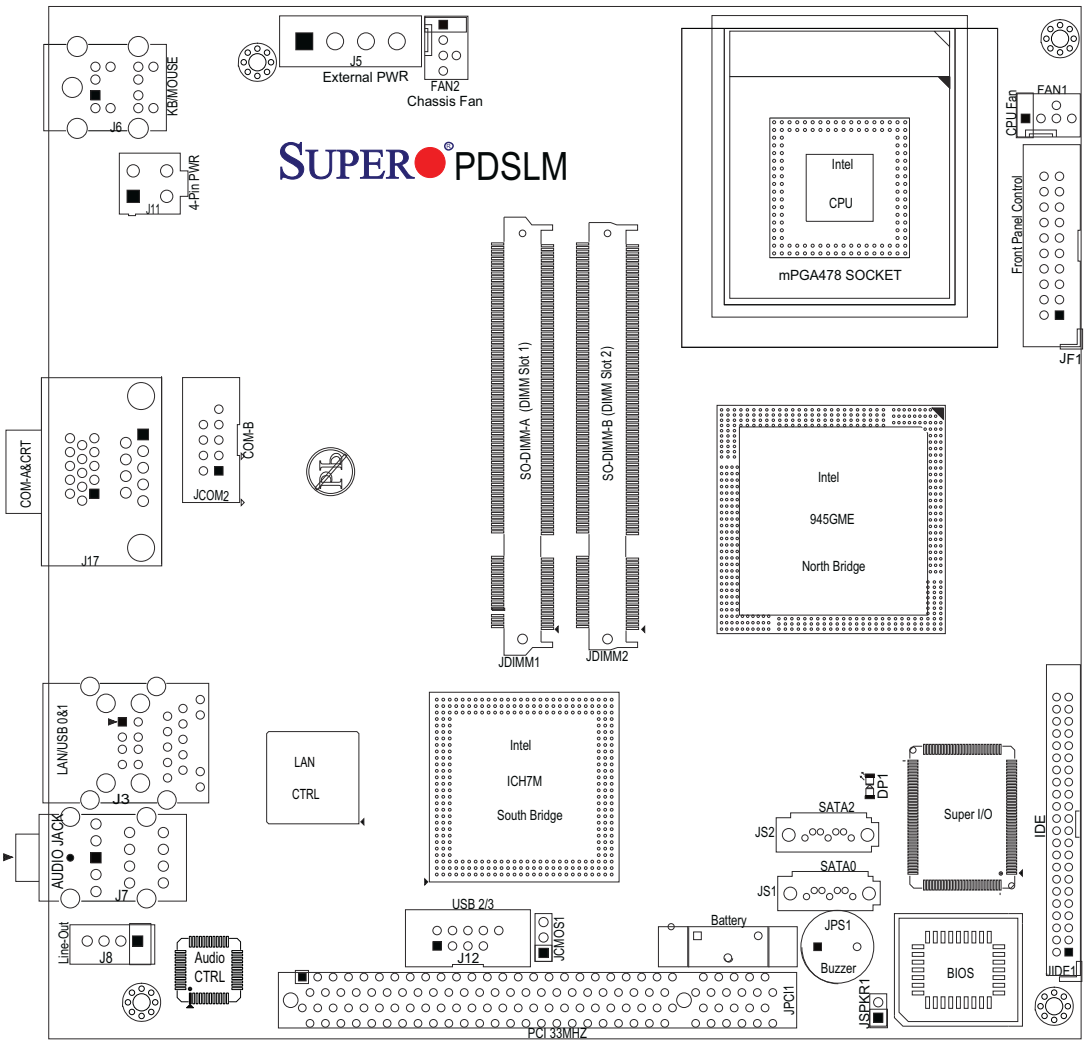
SUPER® PDSLM Image



Note:

All images and layouts shown in this manual were based upon the latest PCB Revision available at the time of publishing of this manual. The motherboard you've received may or may not look exactly the same as the graphics shown in this manual.

Motherboard Layout
(not drawn to scale)



Important Notes to the User

- Connectors/Jumpers not indicated are for testing only.
- See Chapter 2 for detailed information on jumpers, I/O ports and JF1 frontpanel connections.
- "▮" or " ► " indicates the location of "Pin 1".
- When one DIMM module is used, install it in DIMM Slot 1 (SO-DIMMA or JDIMM1). To un-install the DIMM module, be sure to remove the one installed in DIMM Slot 2 (SO-DIMMB or JDIMM2) first.
- To power on the system, please short Pin 14 (the green wire) and Pin 15 (the black wire) of the 12V 20-Pin ATX power connector or Pin 16 (the green wire) and Pin 17 (the black wire) of the 12V 24-Pin ATX power connector first. For system stability, please use 4-pin 12V PWR cables that can supply at least 13A current.

PDSLM Quick Reference (See Chapter 2 for details.)

Jumpers	Description	Default Setting
JCMOS1	CMOS Clear	Pins 1-2 (Keep CMOS)
JSPKR1	Internal Speaker (Buzzer) Enabled	On (Enabled)

Connectors	Description
4-Pin Power (J11)	12V 4-Pin Power Connector (used for the motherboard)
4-Pin PWR (J5)	4-pin (12V/5V) External Power Connector (for external removable devices.)
Audio Jack (J7)	Backplane Line-in, Line-out, Microphone-in Connectors
Audio (Line-out) Header (J8)	Back Panel-Accessible Line-out Header
COM-A (J17)	Backplane COM Port A
(Internal) COM-B (JCOM2)	Onboard (Internal) COM-B Connector
SO-DIMMA (JDIMM1)	Memory Module DIMM Slot 1 (**Note 1**)
SO-DIMMB (JDIMM2)	Memory Module DIMM Slot 2 (**Note 2**)
Fans 1/2	Fan1: CPU Fan, Fan2: Case (Chassis) Fan
FP Control (JF1)	Front Panel Control Header
IDE (JIDE1)	44-Pin IDE slots for 2.5" HDDs
KB/MS (J6)	PS/2 Keyboard/Mouse Connector
LAN (J3)	Ethernet RJ45 (Gigabit LAN) Port Connector
SATA 0 & 2 (JS1/JS2)	Intel ICH7M SATA Headers
SPKR (SP1)	Internal Buzzer
USB0/1 (J3)	Back Panel Universal Serial Bus Ports 0,1
USB2/3 (J12)	Internal (Front Panel Accessible) USB headers 2,3
VGA/CRT (J17)	Video (VGA/CRT) Connector

LED Indicator	Description ((Refer to Chapter 2 for details)
DP1	Onboard Power LED Indicator

Note 1: To power on the system, please short Pin 14 (the green wire) and Pin 15 (the black wire) of the 12V 20-Pin ATX power connector or Pin 16 (the green wire) and Pin 17 (the black wire) of the 12V 24-Pin ATX power connector first. For system stability, please use 4-pin 12V PWR cables that can supply at least 13A current.

Note 2: When one DIMM module is used, install it in DIMM Slot 1 (SO-DIMMA or JDIMM1) first. When two modules are used, remove the one installed in DIMM Slot 2 (SO-DIMMB or JDIMM2) first.

Note 3: if the Onboard Power LED is on, the Standby Power is on. Be sure to disconnect power cables before removing, changing and adding components.

Motherboard Features

CPU ◆ *Latest CPU technology!*

- Single Intel Core2 Duo or Core Solo Processor with a Front Side Bus speed of up to 667 MHz with support of 2 MB of L2 Cache
- Housed in a Micro Flip-Chip Pin Grid Array (Micro-FCPGA) package in the mPGA478M socket, supporting the latest Intel CPU Technology.

The Intel Core™ 2 Duo Processor supports:

- Dual-Core Technology
- Intel Wide Dynamic Execution
- Intel Advanced Smart Cache
- Intel Advanced Digital Media Boost
- Intel Smart Memory Access
- Intel Dynamic Power Coordination
- Enhanced Intel Deeper Sleep with Dynamic cache Sizing
- Intel Dynamic Bus Parking
- Advance Power Gating,
- Enhanced Deep C4 Sleep State, and Split Bus Array

The Intel Core Duo and the Core Solo Processors support:

- Intel Architecture with Dynamic Execution
- On die, 2 MB L2 cache with Advanced Transfer Cache Architecture
- Data Prefetch Logic
- Streaming SIMD Extensions Extension 2 (SSE2) and Streaming SIMD Extensions Extension 3 (SSE3)
- Advanced power management features including Enhanced Intel SpeedStep Technology
- Digital thermal sensor (DTS)
- Execute Disable Bit support for enhanced security
- Intel Virtualization Technology
- Deep C4 and Dynamic Cache Sizing

Memory

- Two DIMM slots support Single/Dual Channel DDR2 667/533/400 MHz up to 4 GB (DDR2 533) of Unbuffered Non-ECC SDRAM.
- One SO-DIMM connector per channel

Chipset

- Intel 945GME Express (North Bridge)
- Intel ICH7M (South Bridge)

BIOS Features

- 8 Mb Flash EEPROM AMI BIOS
- Plug and Play (PnP), APM 1.2, DMI 2.3, ACPI 1.0/2.0, BIOS rescue hot keys, USB Keyboard support, Hardware BIOS Virus Protection, SMBIOS 2.3, and RTC (Real Time Clock)

Power Configurations

- ACPI/ACPM Power Management
- Power-on mode for AC Power Recovery
- 4-Pin 12V Power Connector for the motherboard use, additional 4-Pin Power Connector for external removable devices
- Onboard Standby PWR warning LED Indicator (DP 1)

PC Health Monitoring

- Onboard voltage monitors for CPU cores, Memory (+1.8V), Chipset (+1.5V), +3.3V, +3.3V Standby,+5V, +5V Standby, +12V, –12V and VBAT
- CPU 2-phase-switching voltage regulator
- CPU Fan auto-off in sleep mode
- Two 4-pin fan headers with Tachometer Monitoring, Pulse Width Modulation Fan Control & Low Noise Fan Speed Control
- Watch Dog, NMI

Onboard I/O

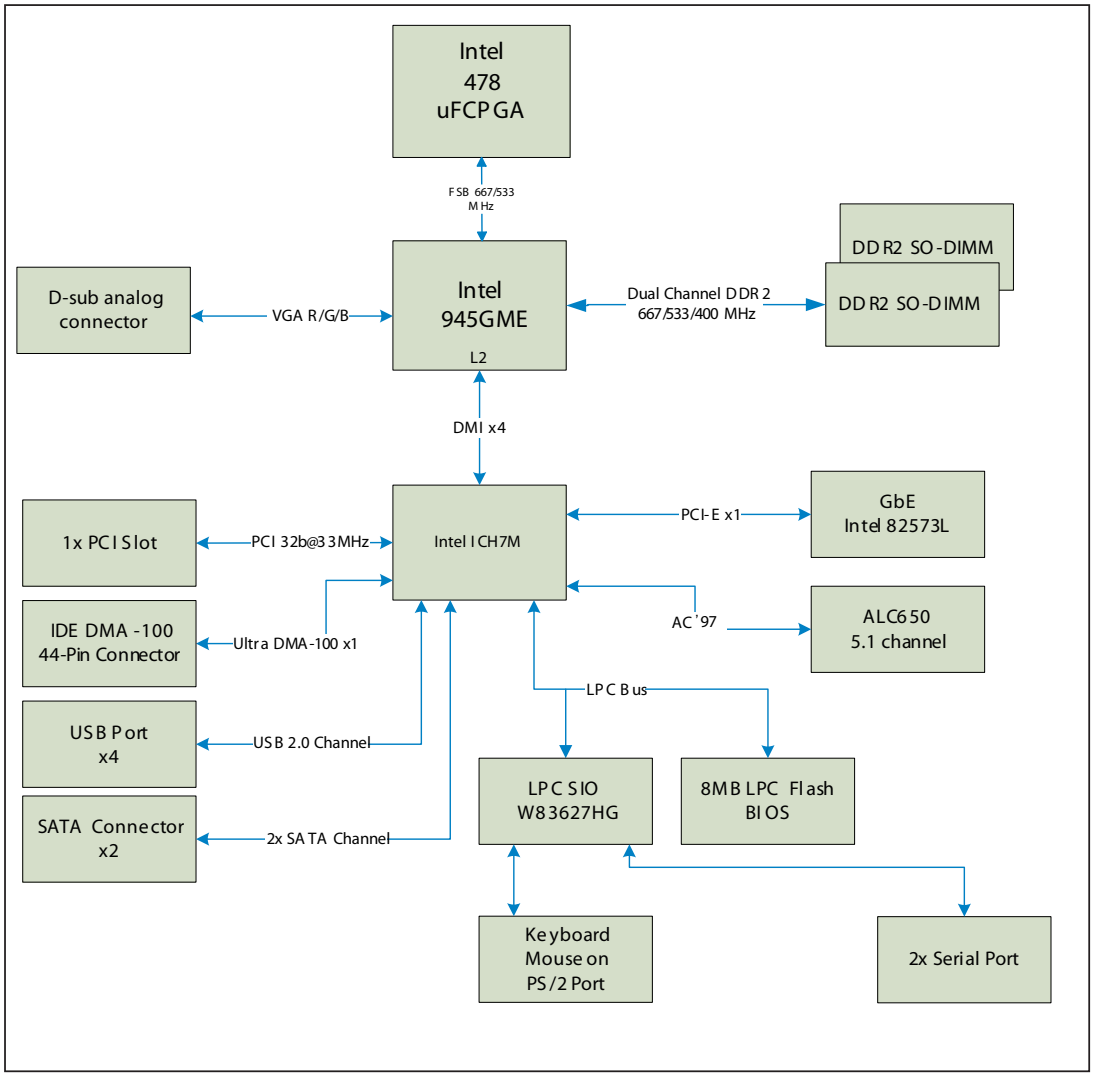
- One ATA/100 EIDE Channel supports PIO Mode 5
- Single 44 pin IDE Connector supports up to 2 devices
- Intel ICH7M South Bridge supports 2 SATA connectors for 2 devices
- One Fast UART 16550 compatible external serial port and one front-panel internal accessible headers
- Intel Gigabit Ethernet 82573L Controller supports a gigabit LAN port
- Realtek ALC650 Audio Controller supports 5.1-channel AC'97 audio
- Backplane Line-in, Line-out, Microphone-in audio connections built in and an additional Line-out header onboard to provide audio access from the rear side of the system
- PS/2 mouse and PS/2 keyboard ports
- Up to 4 USB (Universal Serial Bus) (two 2.0 Back Panel USB ports and two Internal Front-Panel Accessible BUS headers)
- One Video (VGA/CRT) Connector
- Super I/O (Winbond W83627 HG)

Temperature

- Monitoring CPU, chassis environment
- CPU Thermal Trip support

Dimensions

- 6.70" (W) x 6.70" (L) (170 mm x 170 mm)



Motherboard Block Diagram

1-2 Chipset Overview

The Intel 945GME Express chipset, designed for use with the Intel Core2 DuoCore Solo Processor in the Micro Flip-Chip Pin Grid Array Package, consists of the Generation 3.5 Intel Integrated Graphics Engines and the Intel Graphics Media Accelerator 950, providing unparalleled graphics support for gaming and desktop displays.

Memory Controller Hub (MCH)/Graphics Memory Controller Hub (GMCH)

The MCH manages the data flow between four interfaces: the Processor Interface (FSB), the System Memory Interface (DRAM Controller), the Direct Media Interface (DMI) and the Graphics Interface. The MCH is optimized for the Intel Core2 Duo/ Core Solo Processor in the Micro Flip-Chip Pin Grid Array Package.

With support of a scalable FSB Vcc_CPU, the MCH supports FSB speed of up to 667 MHz. It integrates a system memory DDR2 controller with two 64-bit interfaces and supports one or two channels of DDR2 SDRAM.

The I/O Controller (ICH7/ICH7M) provides the data buffering and interface arbitration required for the system to operate efficiently. It also provides the bandwidth needed for the system to maintain its peak performance. The Direct Media Interface (DMI) provides the chip-to-chip connection between the MCH and the ICH7M.

Intel I/O Controller Hub 7 (ICH7M)

The I/O Controller (ICH7M) provides the data buffering and interface arbitration required for the system to operate efficiently. It also provides the bandwidth needed for the system to maintain its peak performance. The Direct Media Interface (DMI) provides the connection between the MCH and the ICH7M. The ICH7M supports Serial ATA ports, USB 2.0 ports and dual channel IDE devices.

Intel ICH7M System Features

The I/O Controller Hub provides the I/O subsystem with access to the rest of the system. The ICH7M supports the following:

Serial ATA (SATA) Controller

Advanced Configuration and Power Interface, Version 2.0 (ACPI)

Advanced Host Controller Interface (AHCI)

Intel Matrix Storage Technology

Low Pin Count (LPC) Interface

Serial Peripheral Interface (SPI)

Compatibility Modules (DMA Controller, Timer/Counter, Interrupt Controller

1-3 PC Health Monitoring

This section describes the PC health monitoring features of the PDSLM. The motherboard has an onboard System Hardware Monitor chip that supports PC health monitoring.

Onboard Voltage Monitoring

The onboard voltage monitor will scan these voltages continuously: CPU Core Voltages, Memory (+1.8V), Chipset (+1.5V), +3.3V, +3.3V Standby, +5V, +5V Standby, +12V, −12V and VBAT. Once a voltage becomes unstable, it will give a warning or send an error message to the screen. The user can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware Speed Control

The PC health monitor can check the RPM status of the cooling fans. The onboard fans are controlled by Thermal Management via BIOS.

1-4 Power Configuration Settings

This section describes the features of Power Configuration and Power Management of your motherboard.

BIOS Support for USB Keyboard

If the USB keyboard is the only keyboard in the system, it will function like a normal keyboard during system boot-up.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that integrates power management features with other components of a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards and hard disk drives. This also includes other devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with both Windows and Linux Operating Systems.

Chapter 2

Installation

2-1 Static-Sensitive Devices

Electro-Static-Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of onboard CMOS battery. Do not install the onboard upside down battery to avoid possible explosion.

Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

2-2 Processor/Heatsink Installation and Removal

When handling the processor package, avoid placing direct pressure on the label area of the fan.

Notes:

1. Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.
2. Intel's mPGA478M CPU package contains the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only the Intel-certified multi-directional heatsink and fan.
3. Refer to the MB Features Section for more details on CPU support.

Tools Needed:

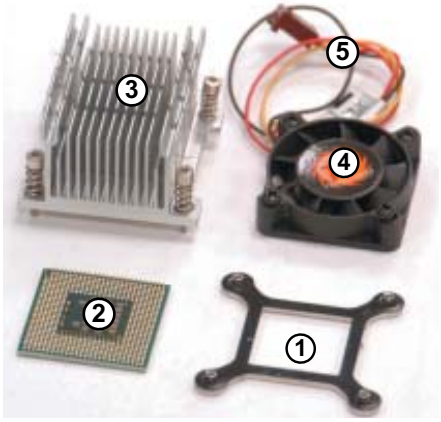
1. a Phillip 1 screwdriver as shown on the right
2. a Flathead screwdriver

Phillip 1 Screwdriver

mPGA478M CPU Assembly Kit:

The CPU Package includes the following:

1. Heatsink Bracket
2. mPGA 478 CPU
3. CPU Passive Heatsink
4. CPU Fan
5. CPU Fan Cable



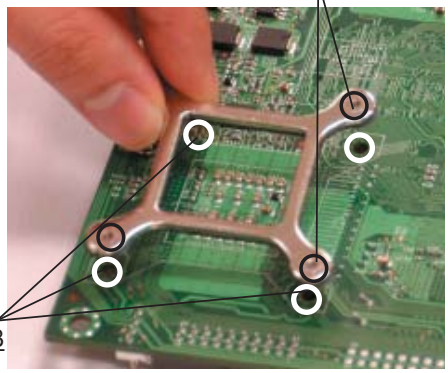
CPU Installation

Installing the Heatsink Bracket

Before installing the CPU on the motherboard, you need to install the heatsink bracket on the reverse side of the motherboard. Follow the steps below to install the heatsink bracket on the back of the motherboard.

1. Locate the four heatsink mounting holes on the reverse side of the motherboard and four heatsink lock alignments on the heatsink bracket.

2. Align the four bracket lock alignments on the heatsink bracket against the four mounting holes on the back of the motherboard.



3. Insert the four bracket lock alignments into the four mounting holes on the back of the motherboard.

Heatsink bracket properly seated on the MB

4. Once the heatsink bracket is properly seated on the motherboard, turn the motherboard upside down so that the front side of the motherboard is facing up.

Installing the CPU

1. Locate Pin 1 on the CPU, and Pin 1 on the CPU socket. (**Note**: Pin 1 is the corner marked with a triangle).

2. Align Pin 1 of the CPU against Pin 1 of the socket. Once aligned, carefully lower the CPU straight down to the socket. (Do not drop the CPU on the socket, move the CPU horizontally or vertically. Do not rub the CPU against the surface or against any pins of the socket to avoid damage to the CPU or the socket.)

3. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.

4. Using a Flathead screwdriver, turn the CPU lock clockwise to secure the CPU into the CPU socket.

(Warning--To prevent damaging the CPU socket, do not over-tighten the CPU lock.)

Pin 1 on the CPU and Pin 1 on the socket

Make sure that the CPU is properly seated on the MB

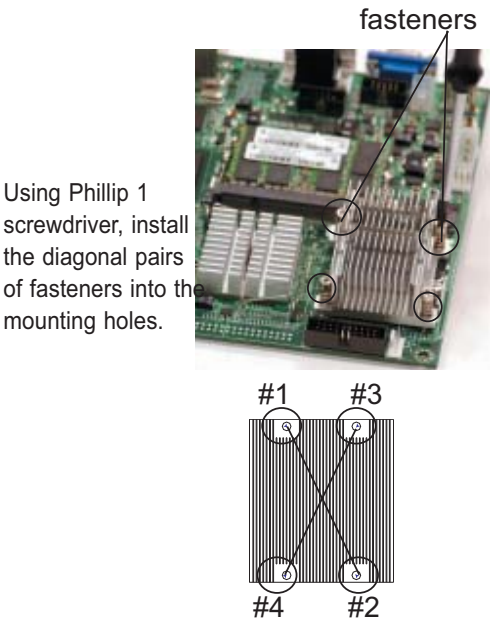
Using a Flathead screwdriver, turn clockwise to lock the CPU

Installing the Passive Heatsink

1. Position the heatsink in such a way that will provide best airflow to the chassis or the motherboard.

2. Align the four heatsink fasteners with the four lock alignments on heatsink bracket.

3. Using a Phillip 1 screwdriver, gently turn the pairs of diagonal heatsink fasteners (#1 & #2 and #3 & #4) clockwise to install the fasteners into the bracket lock alignments.



Installing the CPU Fan

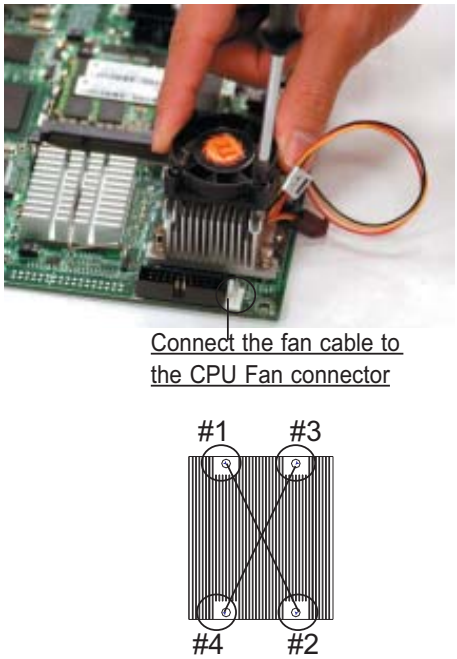
1. Locate the CPU fan connector on the motherboard.

2. Align the CPU fan in such a way that the CPU Fan is closest to the CPU fan connector.

3. Using a Phillip 1 screwdriver, gently turn the pairs of diagonal fan fasteners (#1 & #2 and #3 & #4) clockwise to install the fan fasteners into the mounting holes on the heatsink.

4. Once the CPU fan is properly seated on the heatsink, connect the CPU fan cable to Pins 1-3 of the CPU fan connector.

Note: Please make sure that the CPU fan wire is not pinched between the heatsink and the CPU, nor is it causing interference with other components.

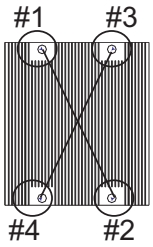


Removing the CPU

1. Unplug the power cord from the power supply.

2. Disconnect the CPU fan wire from the CPU fan connector.

3a. Using a Philip 1 screwdriver, gently turn the diagonal pairs of fasteners counter-clockwise to loosen them.



3b. Once all fan fasteners are loosened, remove the CPU fan from the heatsink.

4. Repeat Step 3 to loosen all heatsink fasteners from the heatsink bracket lock alignments. Once loosened, remove the heatsink from the motherboard.

5. Once removing the CPU Fan and the heatsink, using a Flathead screwdriver, turn the CPU lock counter-clockwise to unlock the CPU.

6. After the CPU is unlocked, remove the CPU from the motherboard.

Using a Flathead screw driver, turn counter-clockwise to unlock the CPU

2-3 Mounting the Motherboard in the Chassis

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all mounting holes for the motherboard and the chassis match. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. Make sure that the metal standoffs click in or are screwed in tightly. Then use a screwdriver to secure the motherboard onto the motherboard tray. (See the layout on the right for mounting hole locations.)

Note: Some components are very close to the mounting holes.Please take all necessary precautionary measures to avoid damaging these components when installing the motherboard into the chassis.

Tools Needed:

1. Philip Screwdrive

2. (4) Panhead #6 screws

Installation Instructions:

1. Locate the mounting holes on the motherboard. Refer to the layout on the right for mounting hole locations.

2. Locate the matching mounting holes on the chassis. Align the mounting holes on the motherboard against the mounting holes on the chassis.

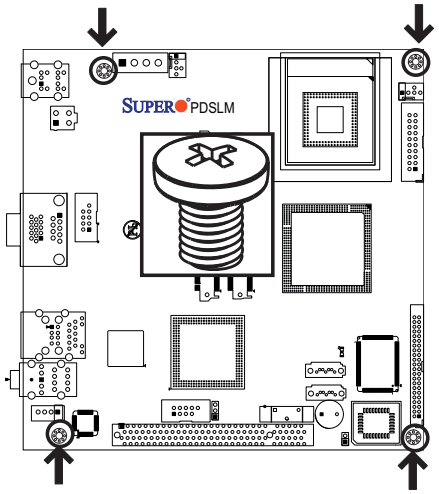
3. Place Standoffs on the chassis as needed.

4. Insert a Panhead #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chass, using a Philip screwdriver.

5. Repeat Step 4 to insert #6 screws to all mounting holes.

6. Make sure that the motherboard is securely placed on the chassis.

Locations of Mounting Holes



2-4 Installing DDR2 Memory

Memory Support

The PDSLM supports up to 4 GB of Dual channel, Non-ECC unbuffered DDR2 667/533/400 SDRAM.

Important Notes on Memory Support

Note: Due to memory allocation to system devices, the amount of memory that remains available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional. (Refer to the Memory Availability Table below for details.)

Possible System Memory Allocation & Availability

System Device	Size	Physical Memory Remaining (-Available) (4 GB Total System Memory)
Firmware Hub flash memory (System BIOS)	1 MB	3.99GB
Local APIC	4 KB	3.99GB
Area Reserved for the chipset	2 MB	3.99GB
I/O APIC (4 Kbytes)	4 KB	3.99GB
PCI Enumeration Area 1	256 MB	3.76GB
PCI Express (256 MB)	256 MB	3.51GB
PCI Enumeration Area 2 (if needed) -Aligned on 256-MB boundary-	512 MB	3.01GB
VGA Memory	16 MB	2.85GB
TSEG	1 MB	2.84GB
Memory available for the OS & other applications		2.84GB

Memory Module Installation and Removal

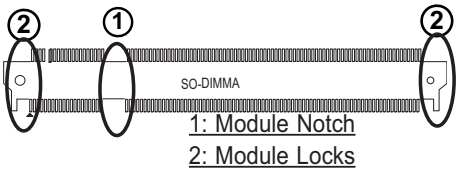
STOP Exercise extreme care when installing or removing memory modules to prevent any possible damage.

Note 1: SO-DIMMA (JDIMM1) is DIMM Slot 1, SO-DIMMB (JDIMM2) is DIMM Slot 2.

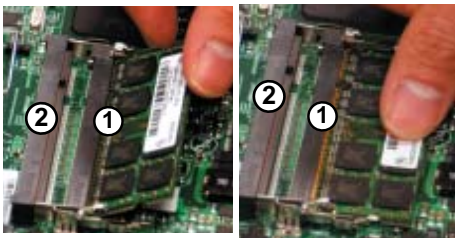
Note 2: When one memory module is used, install it in DIMM Slot 1 (SO-DIMMA or JDIMM1) first. If two memory modules are installed, remove the one installed in DIMM Slot 2 (SO-DIMMB or JDIMM2) first.

Memory Module Installation

1. Insert a memory module at a 45^0 angle into DIMM Slot 1 (marked 1 on the right). Align the notch on the memory module against the notch on the DIMM slot.
2. Once it is properly aligned, using your thumb, gently press down on the middle of the memory module. When you hear a click, the memory module is properly seated.
3. If needed, repeat Step 2 to install the second memory module into DIMM Slot 2 (marked 2 on the right.)



1: Module Notch
2: Module Locks

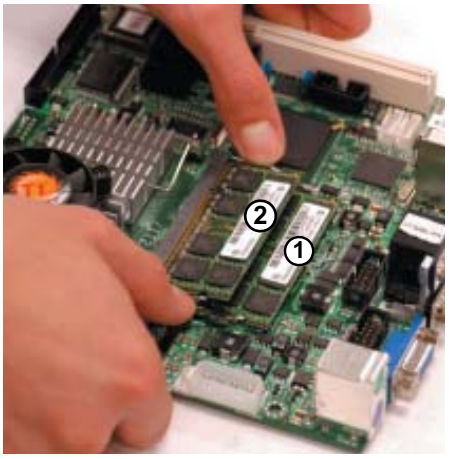


Top:
1: DIMM Slot 1
2: DIMM Slot 2

Left/Bottom:
1: DIMM Module 1
2: DIMM Module 2

Memory Module Removal

1. Locate the memory module locks on both ends of the module.
2. Using your thumbs, push the memory module locks outwards to release the memory module from the DIMM Slot. (If two modules are installed, start this step with DIMM Slot 2 first.)
3. Repeat Step 2 to remove the other module, if needed.

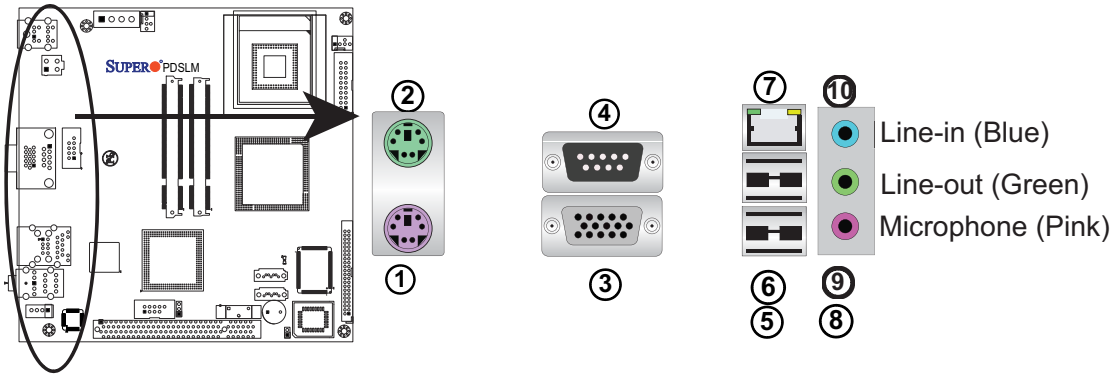


Using your thumbs, push the memory module locks outwards to release it.

2-5 Connectors/IO Ports

The I/O ports are color coded in conformance with the PC 99 specification. See Figure 2-3 below for the colors and locations of the various I/O ports.

A. Back Panel Connectors and IO Ports



I/O Port Locations and Definitions

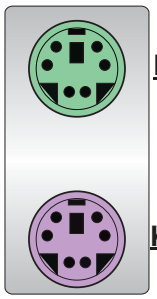
Back Panel Connectors

1. Keyboard (Purple)
2. PS/2 Mouse (Green)
3. Video (VGA/CRT Connector-Blue)
4. COM Port-A (Black)
5. Backplane USB 0
6. Backplane USB 1
7. Gigabit LAN Port
8. Microphone (Pink)
9. Line-out (Green)
10. Line-in (Blue)

(See Section 2-5 for details.)

ATX PS/2 Keyboard and PS/2 Mouse Ports

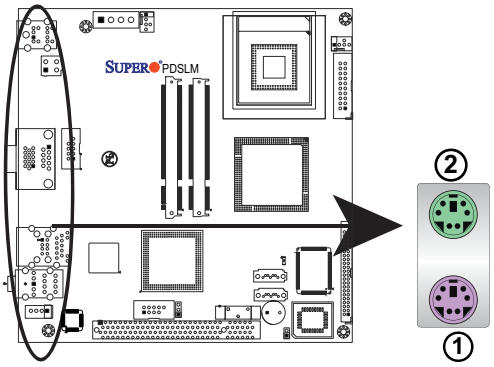
The ATX PS/2 keyboard and PS/2 mouse are located next to the Back Panel Video Port on the motherboard. See the table at right for pin definitions.



Mouse

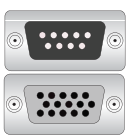
Keyboard

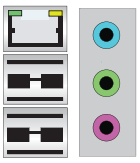
PS/2 Keyboard/Mouse Pin Definitions			
PS2 Keyboard		PS2 Mouse	
Pin#	Definition	Pin#	Definition
1	KB Data	1	Mouse Data
2	No Connection	2	No Connection
3	Ground	3	Ground
4	Mouse/KB VCC (+5V)	4	Mouse/KB VCC (+5V)
5	KB Clock	5	Mouse Clock
6	No Connection	6	No Connection
VCC: with 1.5A PTC (current limit)			



1. Keyboard (Purple)

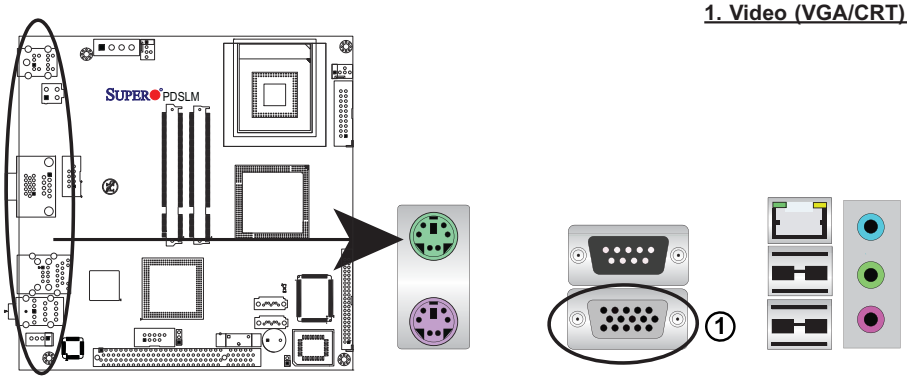
2. Mouse (Green)





Video (VGA/CRT) Connector

A Video (VGA/CRT) connector is located below the COM Port1 on the IO backplane. This connector is used to provide video and CRT display Refer to the board layout below for the location.



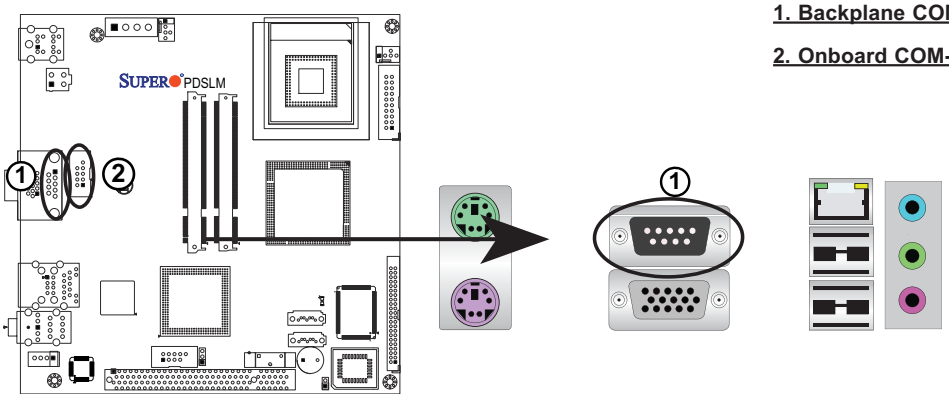
1. Video (VGA/CRT) (Blue)

Serial Ports

Two COM connections (COM-A & COM-B) are located on the motherboard. COM-A (J17) is located above the Video port (VGA) on the Backplane IO panel. COM-B (JCOM2) is located behind COM-A port (J17) to provide additional onboard serial connection support. See the table on the right for pin definitions.

Serial Ports-COMA/COMB Pin Definitions

Pin #	Definition	Pin #	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	N/A

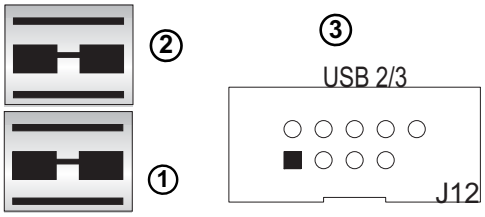


1. Backplane COM-A

2. Onboard COM-B

Universal Serial Bus (USB)

Two Universal Serial Bus ports (USB 0 and USB 1) are located at J3 below the GLAN port on the I/O back panel. Additionally, two USB ports (USB 2 and USB 3) are located at J12 on the motherboard to provide front side chassis access (cables not included). See the tables on the right for pin definitions.

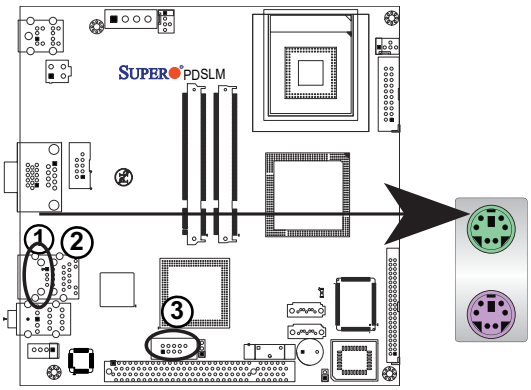


Back Panel USB 0/1 (J3)

Pin#	Definition	Pin#	Definition
1	+5V	5	+5V
2	USB_PN1	6	USB_PN0
3	USB_PP1	7	USB_PP0
4	Ground	8	Ground

Front Panel USB 2/3 (J12)

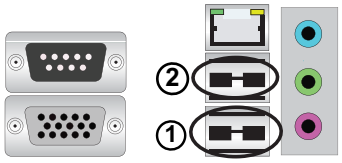
USB 2		USB 3	
Pin #	Definition	Pin #	Definition
1	+5V	6	+5V
2	USB_PN2	7	USB_PN3
3	USB_PP2	8	USB_PP3
4	Ground	9	Ground
5	No Con-nection	10	Key



1. Backplane USB 0

2. Backplane USB 1

3. (Front-Accessible) USB 2/3



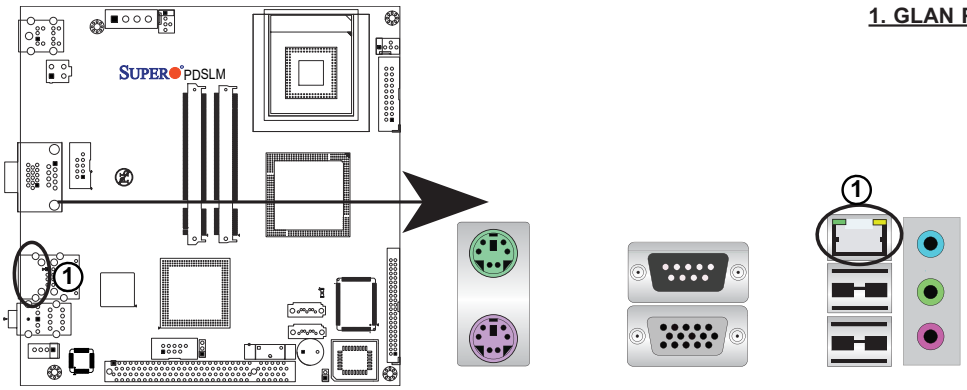
Gigabit LAN (Ethernet) Port

A Gigabit Ethernet port (GLAN) is located at J3 above the USB ports on the IO backplane. This port accepts RJ45 type cables. (**Note**: Please refer to the LED Indicator Section for GLAN LED information.)

GLAN Port (J3) Pin Definition

Pin#	Definition		
9	P2V5SB	18	SGND
10	TD0+	19	Act LED
11	TD0-	20	P3V3SB
12	TD1+	21	Link 100 LED (Yellow, +3V3SB)
13	TD1-	22	Link 1000 LED (Yellow, +3V3SB)
14	TD2+	23	Ground
15	TD2-	24	Ground
16	TD3+	27	Ground
17	TD3-	28	Ground

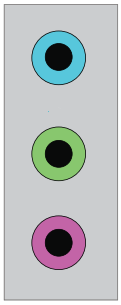
(NC: No Connection)



1. GLAN Port

AC'97 Audio

AC'97 provides high quality onboard audio connection (J7) on the I/O Backplane. This motherboard features a 6-channel sound for front L&R, rear L&R, center and subwoofer speakers. You can activate this function through an advanced software program stored in the CD-ROM that came with your motherboard shipment. Sound is then output through the Line In, Line-out and MIC jacks on the backplane and an additional Line-out header on J8. Please refer to Section 2.6 Connecting Cables.



Blue: Line-in(surround sound L/R)

Green: Line-out (Front L/R)

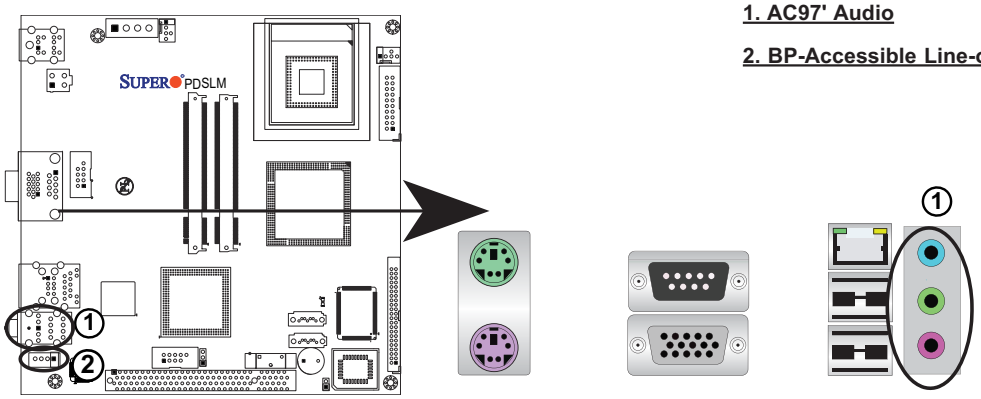
Pink Mic-in (Center/ subwoofer)

Back Panel-Accessible Line-out Header

In addition to the AC'97 Audio connection located at J7, this motherboard also provides a Line-out header (J8) that can be accessed from the rear side of the system. Refer to the table on the right for pin-out definitions.

BP-Accessible Line-out (J8) Pin Definitions

Pin#	Definitions
1	BP Line-out-L
2	Ground
3	Ground
4	BP Line-out-R



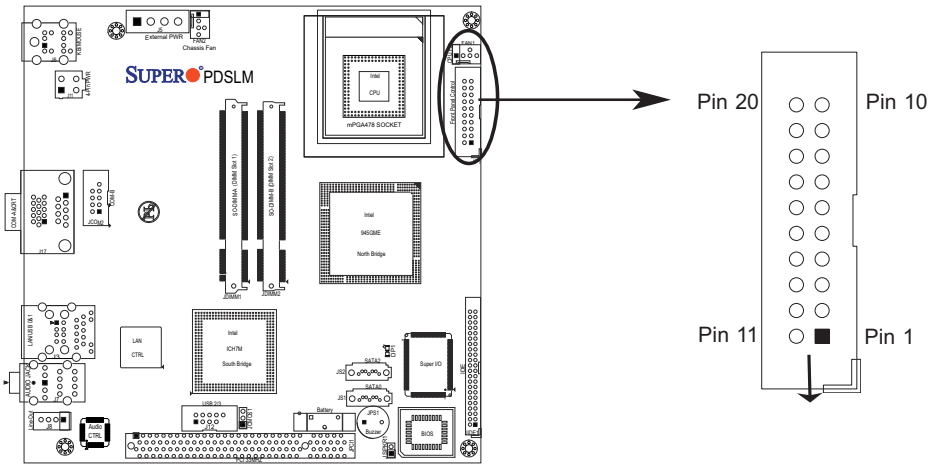
1. AC97' Audio

2. BP-Accessible Line-out Header

B-1. Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro server chassis. See Figure 2-4 for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.

JF1 Header Pins



	20	10	
Pin 20: Beep	○	○	Pin 10: Error LED (C)
Pin 19: +3.3 Standby (Reserved)	○	○	Pin 9: Error LED (A)
Pin 18: +5V Standby (Reserved)	○	○	Pin 8: Message LED (C)
Pin 17: Ground	○	○	Pin 7: Message LED (A)
Pin 16: Ground	○	○	Pin 6: +3.3 Standby (Reserved)
Pin 15: Non-Override PWR Switch	○	○	Pin 5: HDD LED (C)
Pin 14: Ground	○	○	Pin 4: HDD LED (A)
Pin 13: Reset Switch	○	○	Pin 3: Ground
Pin 12: Ground	○	○	Pin 2: PWR LED (A)
Pin 11: PWR Switch	○	○	Pin 1: PWR LED (A)
	11	1	

(Note: Reserved: No Connection)

B-2. Front Control Panel Pin Definitions

System Beep

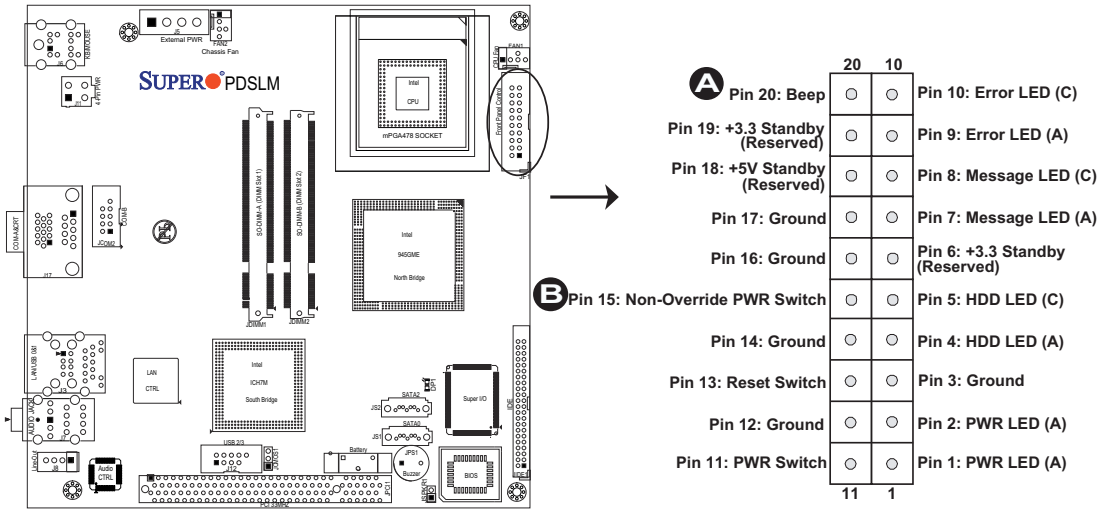
The System Beep connection is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

System Beep Pin Definitions (JF1)	
Pin#	Definition
19	P3V3SB
20	System Beep

Non-Override PWR Switch

The Non-Override Power Switch connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

Non-Override PWR Switch Pin Definitions (JF1)	
Pin#	Definition
15	Non-Override PWR Switch
16	Ground



System Reset Switch

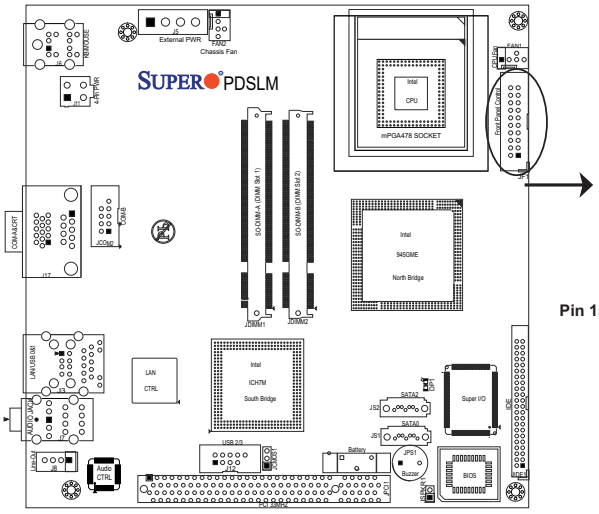
The Front Panel System Reset Switch connection is located on pins 13 and 14 of JF1. See the table on the right for pin definitions.

Reset Switch Pin Definitions (JF1)	
Pin#	Definition
13	Reset Switch
14	Ground

Power Switch

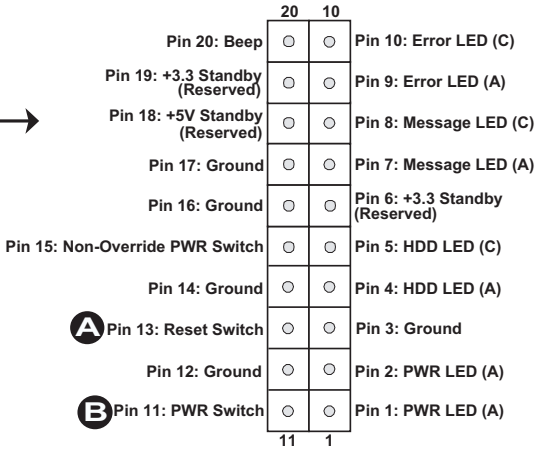
The Power Switch connection is located on pins 11 and 12 of JF1. Attach it to the hardware reset switch on the computer case. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in BIOS - see Chapter 4). To turn off the power while in suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

PWR Switch Pin Definitions (JF1)	
Pin#	Definition
11	PWR Switch
12	Ground



A. Reset Switch

B. PWR Switch



Error LED (CPU Overheat LED)

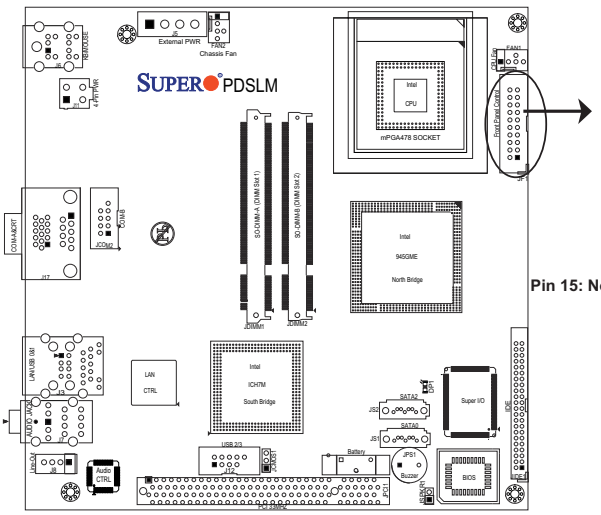
Connect an LED cable to the Error LED connection on pins 9 and 10 of JF1 to provide warnings when the CPU temperature exceeds a pre-defined overheat temperature threshold. When the CPU temperature reaches this overheat threshold, the CPU activates THERMTRIP# signals, the system shuts down and the Error LED starts to blink. Refer to the table on the right for pin definitions.

Error LED Pin Definitions (JF1)	
Pin#	Definition
9	P3V3SB
10	Error LED

Message LED (CPU Fan Failure/Chassis Fan Failure/ CPU Overheat LED)

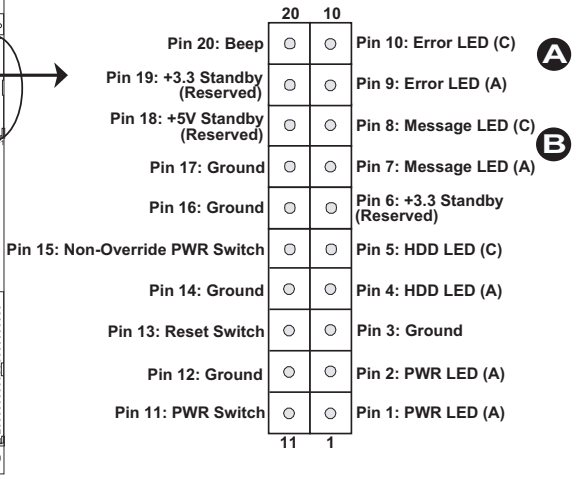
The Message LED connection is located on pins 7 and 8 of JF1. Connect a cable to pins 7 and 8 to provide a warning (-slow blinking) in an event of CPU Fan Failure, Chassis Fan Failure or CPU Overheat. Refer to the table on the right for pin definitions.

Message LED Pin Definitions (JF1)	
Pin#	Definition
7	P3V3
8	Message LED



A. Error LED

B. Message LED



HDD LED

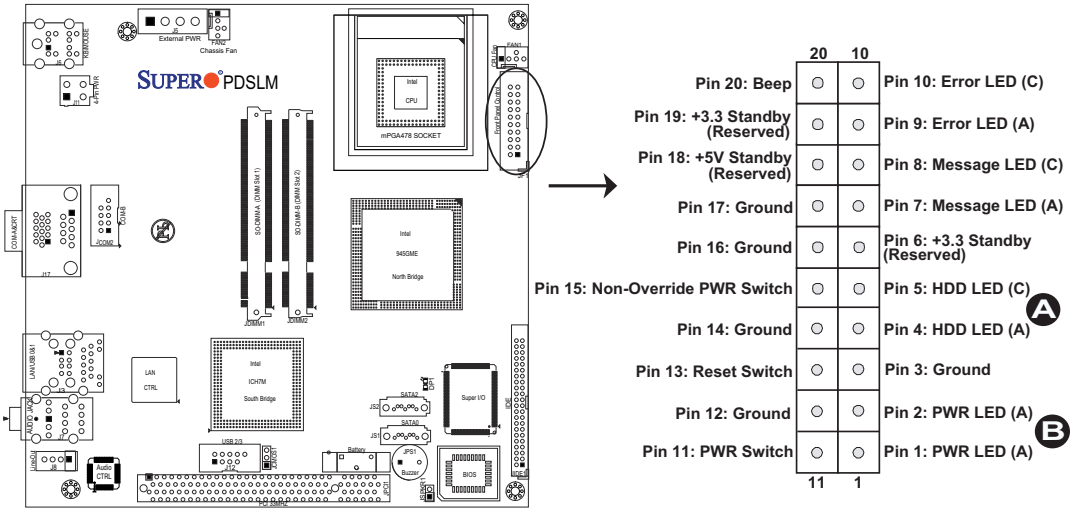
The HDD LED connection is located on pins 4 and 5 of JF1. Attach the hard drive LED cable here to display disk activity (for any hard drives on the system, including Serial ATA and IDE). See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	Definition
4	P5V
5	IDE SATA Activity

Power LED

The Power LED connection is located on pins 1 and 2 of JF1. Refer to the table on the right for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
1	P5V
2	Ground



2-6 Connecting Cables

This section provides brief descriptions and pin-out definitions for onboard headers and connectors. Be sure to use the correct cable for each header or connector.

- For information on FP USB (USB 2/3), please see Page 2-13.
- For information on COM-A Port and COM-B Port, please see Page 2-12.

Main Power Connector

The 12V 4-pin main power supply connector located at J11 provides power supply for use of the motherboard. See the table on the right for pin definitions. (See Notes below.)

12V 4-Pin Main Power Connector (J11) Pin Definitions

Pins	Definition
1 & 2	Ground
3 & 4	+12VSB

Required Connection

External Power Connector

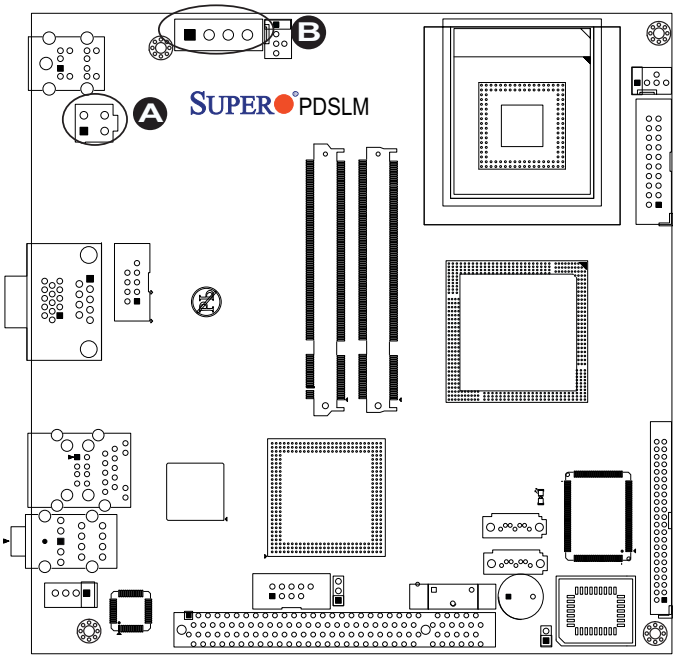
In addition to the 4-pin main power connector, which supplies power needed for the motherboard (above), the other 4-pin External Power connector at J5 is used to provide power to external removable devices such as HDD, SATA and CD-ROM Devices. This power connector supports 12V and 5V devices. (See Notes below.)

12V 4-Pin External Power Connector (J5) Pin Definitions

Pin	Definition
1	+12V
2	Ground 1
3	Ground 2
4	+5V

Required Connection

Note: To power on the system, please short Pin 14 (the green wire) and Pin 15 (the black wire) of the 12V 20-Pin ATX power connector or Pin 16 (the green wire) and Pin 17 (the black wire) of the 12V 24-Pin ATX power connector first. For system stability, please use 4-pin 12V PWR cables that can supply at least 13A current.



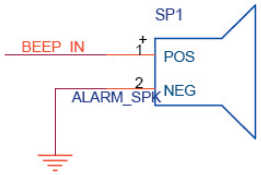
A. 4-Pin Main PWR

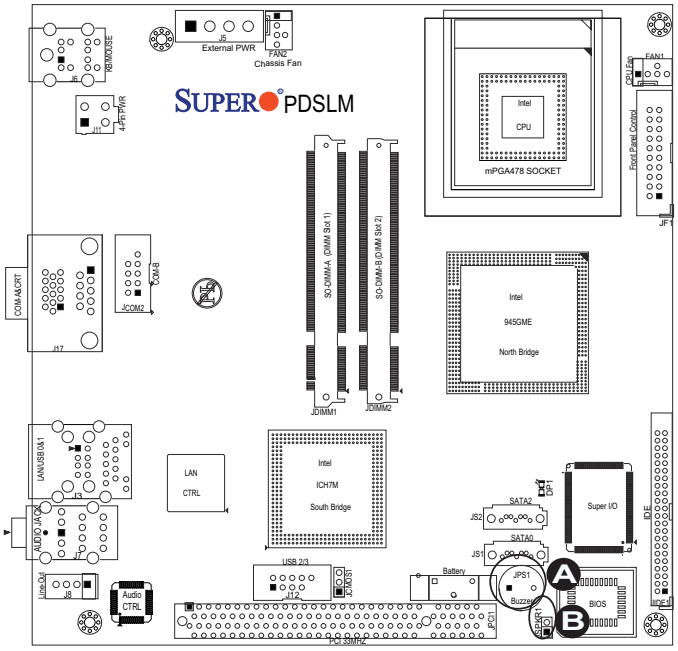
B. 4-Pin External PWR

Internal Buzzer

The Internal Buzzer, located at SP1, can be used to provide audible indications for various beep codes when-JSPKR1 is set to Enabled. See the table on the right for pin definitions. Refer to the layout below for the locations of the Internal Buzzer (SP1) and the Speaker Jumper (JSKPR1).

Internal Buzzer (SP1)		
Pin#		Definitions
Pin 1	Pos. (+)	Beep In
Pin 2	Neg. (-)	Alarm Speaker





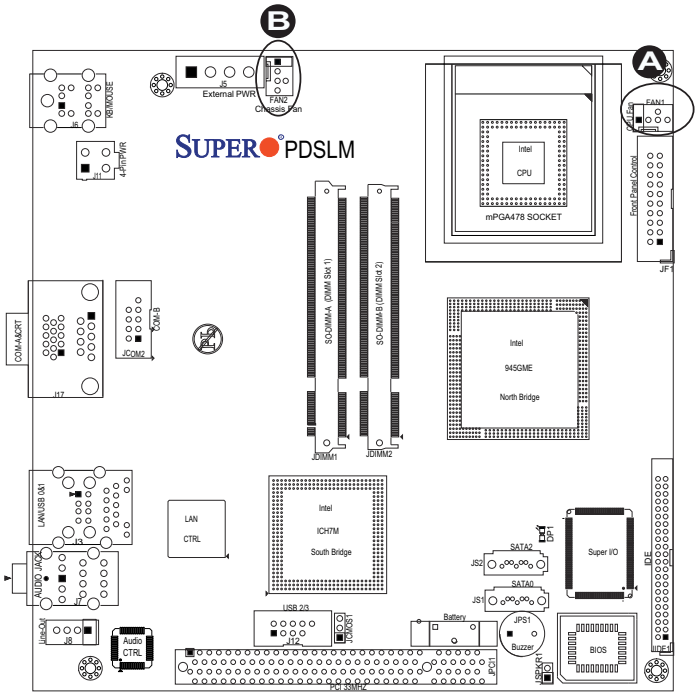
A. Internal Buzzer

B. Speaker Jumper (JSPKR1)

Fan Headers

The PDSLM has two fan headers (Fan1 and Fan2). Fan1 is used for CPU cooling. Fan2 is used as a chassis fan. Both fans are 4-pin fan headers. However, Pins 1-3 of the fan headers are backward compatible with the traditional 3-pin fans. (**Note**: When using Thermal Management settings, please use all 3-pin fans or all 4-pin fans on the motherboard. Please do not use 3-pin fans and 4-pin fans on the same board. The default setting is **Disabled** which will allow the onboard fans to run at full speed.) Refer to the table on the right for pin definitions.

Fan Header Pin Definitions (Fan1-5)	
Pin#	Definition
1	Ground (Black)
2	2.5A/+16V (Red)
3	Tachometer
4	PWM_Control



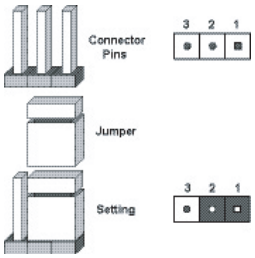
A. Fan1 (CPU Fan)

B. Fan2 (Case Fan(

2-7 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board.



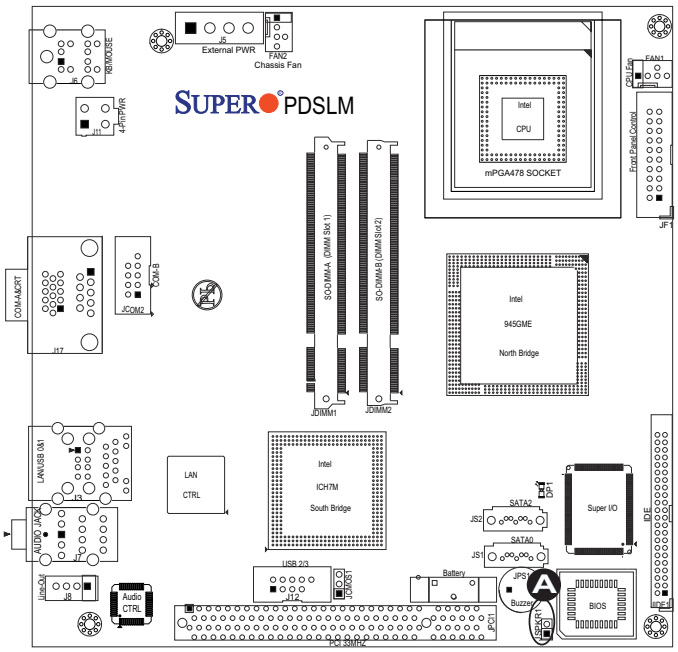
Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.

Internal Buzzer Enable

Use JSPKR1 to enable the onboard internal buzzer to provide audio indications for various beep codes. See the table on the right for jumper settings. The default setting is **Enabled**.

Internal Buzzer Enable Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

A. Internal Buzzer Enable

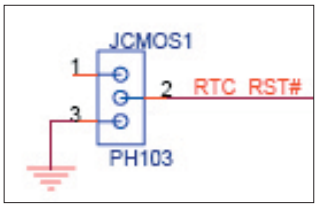


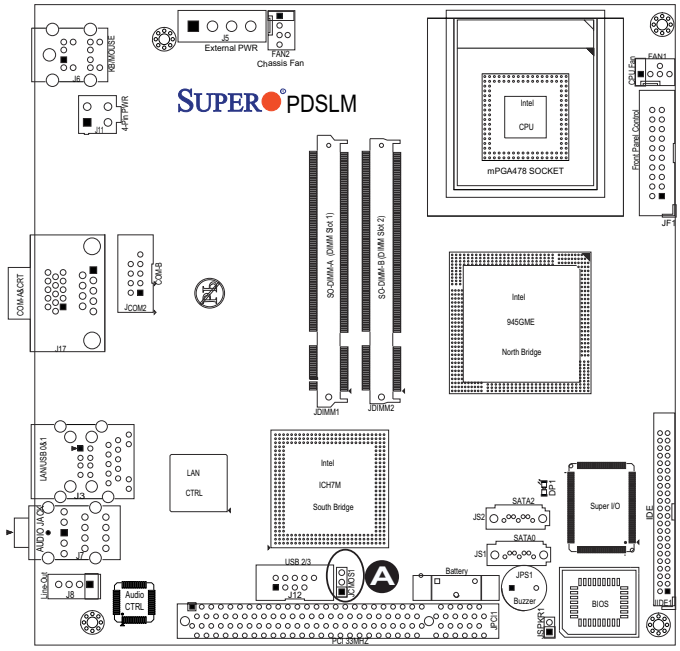
CMOS Clear

JBT1 allows the user to reset the CMOS settings to the default values after each BIOS update. Please turn off the computer, remove the AC power cord, and then move the jumper to pins 1-2 to reset the CMOS settings to the default settings. To restore the computer to its normal operation, move the jumper to pins 2-3 instead.

Note: For an ATX power supply, you must completely shut down the system, remove the AC power cord and then move the jumper to pins 1-2 to clear CMOS. **Do not use** the PWR_ON connector to clear CMOS.

CMOS Clear Jumper Settings	
Jumper	Definition
Pins 1-2	Keep CMOS
Pins 2-3	Normal Operation





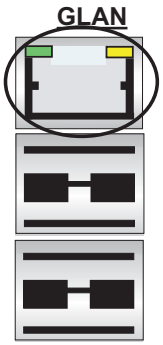
A. Clear CMOS

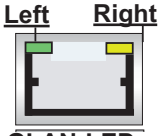
B. Internal Buzzer Enable

2-8 Onboard Indicators

GLAN LEDs

A Gigabit LAN port (J3) is located on top of the USB Ports 0/1 on the IO Backplane. This Gigabit Ethernet LAN port has two LEDs. The green LED on the right indicates activity, while the other LED on the left side may be green, amber or off to indicate connection speeds. See the table on the right for more information.



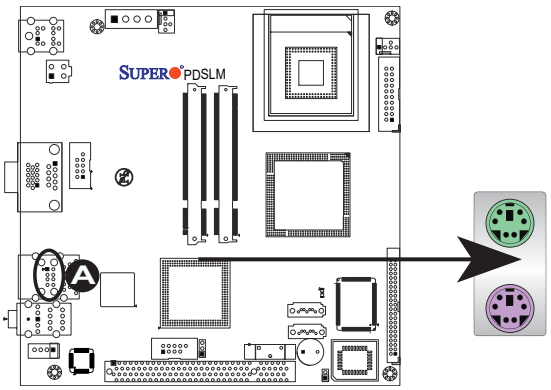


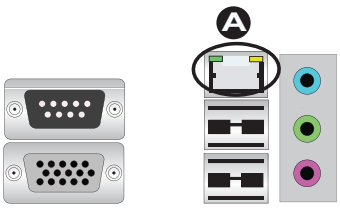
GLAN LED
(**Rear View**: When viewing from the rear side of the chassis)

GLAN Left LED Activity Indicator	
LED Color	Definition
Green	Flashing: LAN Port Active

GLAN Right LED Connection Speed Indicator	
LED Color	Definition
Off	10Mbps or No Connection
Green	100 Mbps
Amber	1 Gbps

A. GLAN1 Port

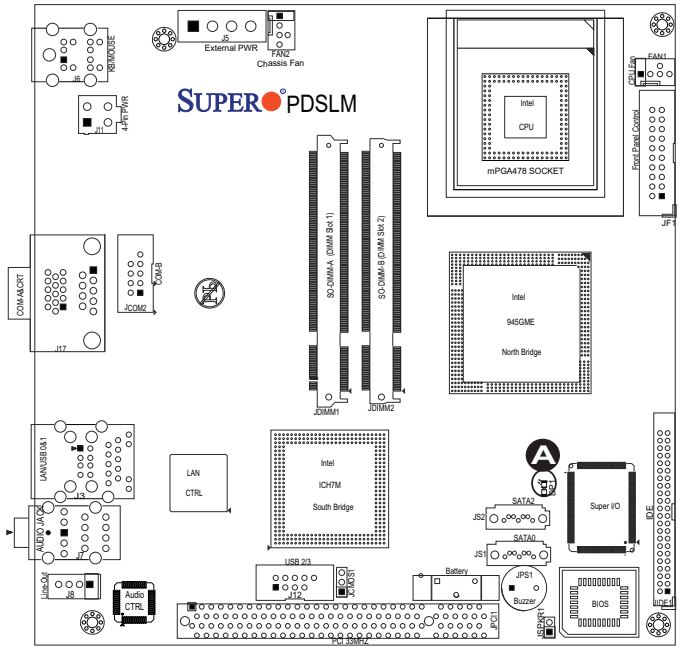




Onboard Power LED

An Onboard Power LED is located at DP1 on the motherboard. When DP1 is off, the system is off. When the green light is on, the AC power cable is connected. Make sure to disconnect the power cable before removing or installing any component. See the layout below for the LED location.

Onboard PWR LED Indicator	
LED Color	Definition
Off	System Off
Green	System on, or System off and PWR Cable Connected



A. Onboard Power LED

2-9 Serial ATA and Hard Disk Drive Connections

Note the following conditions when connecting the Serial ATA and hard disk drive cables:

- Be sure to use the correct cable for each connector. Refer to Page 1-1 for cables that came with your shipment.
- A red mark on a wire indicates the location of pin 1.
- The connector with twisted wires always connects to drive A, and the connector that does not have twisted wires always connects to drive B.

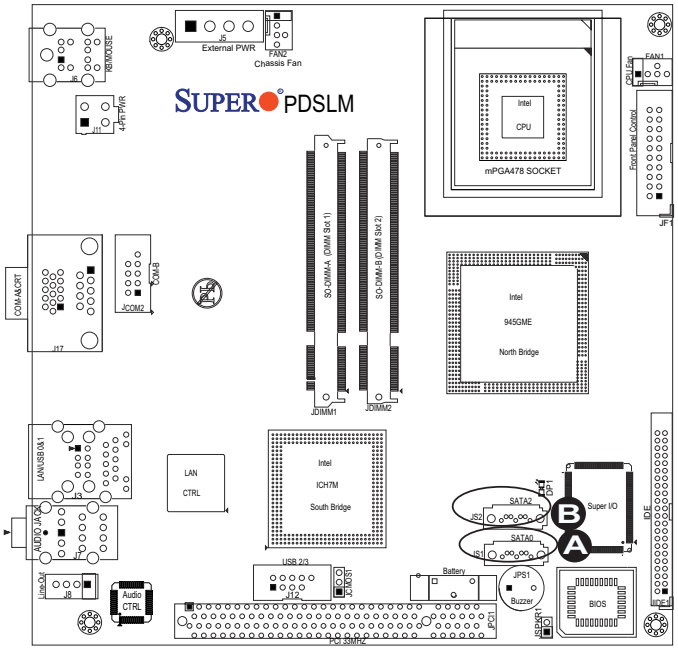
SATA Connectors

Two Serial ATA (SATA) connectors (SATA0, SATA2) are located on the motherboard to provide serial link connections for faster data transmission than the traditional Parallel ATA. These two SATA connectors are supported by the Intel ICH7 Chip (South Bridge). SATA0 is located at JS1, and SATA2, JS2. See the table on the right for pin definitions.

SATA Connectors (SATA0/SATA2)	
Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground

A. SATA0

B. SATA2



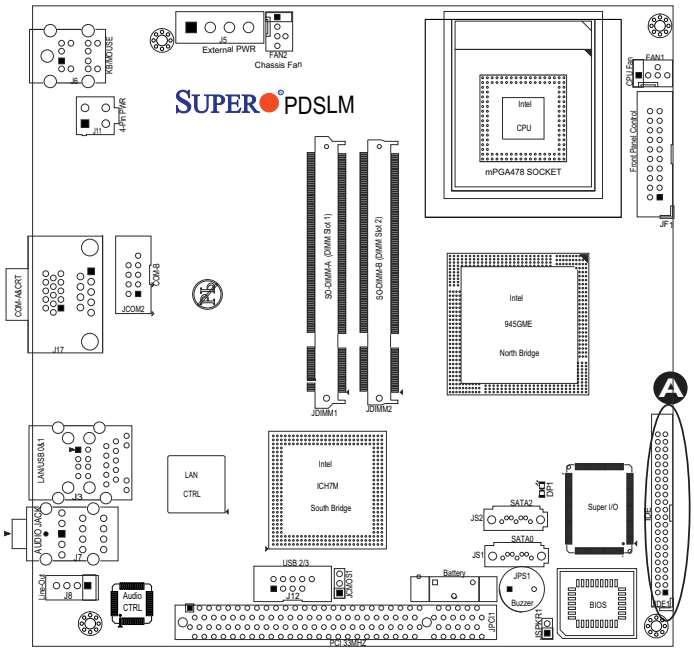
IDE Connector

An IDE Connector is located at JIDE1 on the motherboard. This 44-pin connector provides support for 2.5" hard drive disks. See the table on the right for pin definitions.

IDE Drive Connectors
Pin Definitions (JIDE)

Pin#	Definition	Pin #	Definition
1	Reset IDE	2	Ground
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	Ground	20	Key
21	DRQ3	22	Ground
23	I/O Write	24	Ground
25	I/O Read	26	Ground
27	SIORDY	28	(PD)
29	SDDACK#	30	Ground
31	IRQ15	32	(NC)
33	Addr1	34	SHDD66DET
35	Addr0	36	Addr2
37	SDCS1#	38	SDCS3#
39	SHDDLED#	40	Ground
41	+5V	42	+5V
43	Ground	44	(NC)

A. IDE



Notes

Chapter 3

Troubleshooting

3-1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. Always disconnect the AC power cord before adding, removing, changing or installing any hardware components.

Before Power On

1. Make sure that the 4-pin 12v main power connector and the 12v/5v external power connectors are connected.
2. Make sure that there are no short circuits between the motherboard and chassis.
3. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse.
4. Remove all add-on cards.
5. Install a CPU and heatsink (making sure that it is fully seated,) and then, connect the chassis speaker and the power LED to the motherboard. Check all jumper settings as well.
6. Make sure to use the correct type of CMOS battery as specified by the Manufacturer. Do not install the CMOS battery upside down to avoid possible explosion.

No Power

1. Make sure that there are no short circuits between the motherboard and the chassis.
2. Make sure that all jumpers are set to their default positions.
3. Check if the 115V/230V switch on the power supply is properly set.
4. Turn the power switch on and off to test the system.
5. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on, but you have no video--in this case, you will need to remove all the add-on cards and cables first.
2. Use the speaker to determine if any beep codes exist. (Refer to Appendix A for details on beep codes.)
3. Remove all memory modules and turn on the system. (If the alarm is on, check the specs of the memory, reset the memory or try a different one.)

NOTE

If you are a system integrator, VAR or OEM, a POST diagnostics card is recommended. For I/O port 80h codes, refer to App. B.

Memory Errors

1. Make sure that the DIMM modules are properly installed and fully seated in the slots.
2. You should be using unbuffered, Non-ECC DDR2-677/533/400 memory (see the next page). Also, it is recommended that you use the same memory speed for all DIMMs in the system. See Section 2-4 for memory limitations.
3. Check for bad DIMM modules or slots by swapping modules between slots and noting the results.
4. Check the power supply voltage 115V/230V switch.

Losing the System's Setup Configuration

1. Please be sure to use a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information. Refer to Section 1-6 for details on recommended power supplies.
2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.
3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

3-2 Technical Support Procedures

Before contacting Technical Support, please make sure that you have followed all the steps listed below. Also, note that as a motherboard manufacturer, Supermicro does not sell directly to end-users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our web site (http://www.supermicro.com/support/faqs/) before contacting Technical Support.
2. BIOS upgrades can be downloaded from our web site at (http://www.supermicro.com/support/bios/).

Note: Not all BIOS can be flashed; some can be flashed; it depends on the modifications to the boot block code.

3. If you've followed the instructions above to troubleshoot your system, and still cannot resolve the problem, then please contact Supermicro's technical support and provide them with the following information:

- Motherboard model and PCB revision number
- BIOS release date/version (this can be seen on the initial display when your system first boots up)
- System configuration

An example of a Technical Support form is on our web site at (http://www.supermicro.com/support/contact.cfm).

4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at support@supermicro.com, by phone at: (408) 503-8000, option 2, or by fax at (408)503-8019.

3-3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: The PDSLM supports up to 4 GB of **unbuffered**, Non-ECC DDR2-677/533/400, two-way interleaved or non-interleaved SDRAM. See Section 2-4 for details on installing memory.

Question: How do I update my BIOS?

It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our web site at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our web site. Select your motherboard model and download the BIOS file to your computer. Also, check the current BIOS revision and make sure that it is newer than your BIOS before downloading. You can choose from the zip file and the .exe file. If you choose the zip BIOS file, please unzip the BIOS file onto a bootable device or a USB pen. Run the batch file using the format flash.bat filename.rom from your bootable device or USB pen to flash the BIOS. Then, your system will automatically reboot. If you choose the .exe file, please run the .exe file under Windows to create the BIOS flash floppy disk. Insert the floppy disk into the system you wish to flash the BIOS. Then, bootup the system to the floppy disk. The BIOS utility will automatically flash the BIOS without any prompts. Please note that this process may take a few minutes to complete. Do not be concerned if the screen is paused for a few minutes.

(**Warning**: Do not shut down or reset the system while updating BIOS to prevent possible system boot failure!)

Question: What's on the CD that came with my motherboard?

Answer: The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include chipset drivers for the Windows OS, security and audio drivers.

3-4 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Chapter 4

BIOS

4-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the PDSLM. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.

Starting BIOS Setup Utility

To enter the AMI BIOS Setup Utility screens, press the <Delete> key while the system is booting up.

(**Note**: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.)

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (**Note**: the AMI BIOS has default text messages built in. Supermicro retains the right to include, omit, or change any of these text messages.)

The AMI BIOS Setup Utility uses a key-based navigation system called hot keys. Most of the AMI BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, arrow keys, etc. (**Note**: Options printed in **Bold** are default settings.)

How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS Setup utility. This Setup utility can be accessed by pressing <Del> at the appropriate time during system boot.

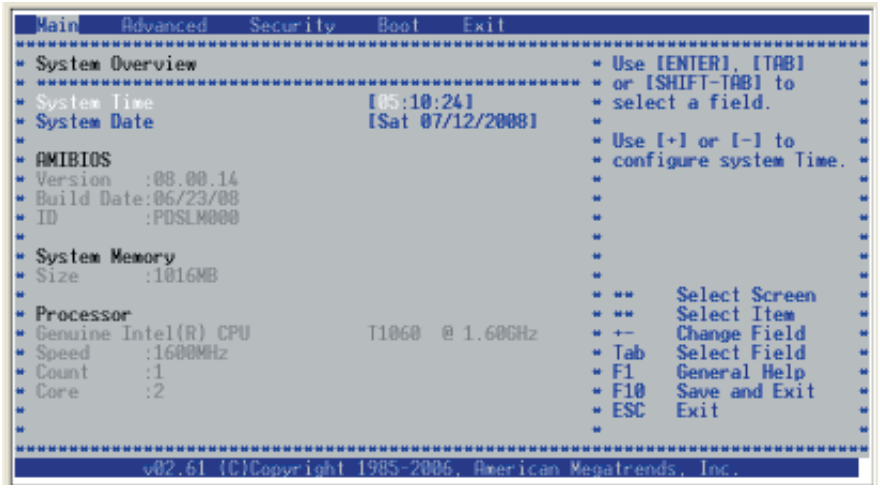
Starting the Setup Utility

Normally, the only visible POST (Power On Self Test) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS Setup Utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen, below the copyright message.

Warning!! Do not shut down or reset the system while updating BIOS to prevent possible boot failure.

4-2 Main Setup

When you first enter the AMI BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.



System Overview

System Time/System Date

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the arrow keys. Enter new values through the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in DAY/MM/DD/YY format. The time is entered in HH:MM:SS format.(**Note:** The time is in 24-hour format. For example, 5:30 A.M. appears as 05:30:00.)

AMI BIOS

Version

Build Date

ID

Processor

When you select this option, the AMI BIOS will automatically display the status of processors as shown below:

Processor Type

Speed

Count

Core

System Memory

This option allows the AMI BIOS to display system memory size.

Size

4-3 Advanced Setup

Use the arrow keys to select Advanced Setup and hit <Enter> to access the sub-menu items:

▶BIOS Settings Configuration

Quick Boot

If Enabled, this option will skip certain tests during POST to reduce the time needed for system boot. The options are **Enabled** and Disabled.

Quiet Boot

This option allows the bootup screen options to be modified between POST messages or the OEM logo. Select **Disabled** to allow the computer system to display the POST messages. Select Enabled to allow the computer system to display the OEM logo.

ACPI Configuration

ACPI APIC Support

Select Enabled to allow the ACPI APIC Table Pointer to be included in the RSDP pointer list. The options are Enabled and Disabled.

Power Configuration

Power Button Mode

Select **On/Off** to immediately turn on or turn off power supply as soon as the user presses the power button. Select Suspend to cause delay in powering on or powering off when the power button is pressed.

Power Loss Control

The feature allows the user to set the power state after a power outage. Select Power-Off for the system power to remain off after a power loss. Select Power-On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last state before a power loss. The options are **Power-On**, Power-Off and Last State.

Watch Dog Function

Select Enabled to allow the system to automatically reboot after it is inactive for more than 5 minutes. The options are **Enabled** and Disabled.

MPS Version

This feature allows the user to select the MPS (Multi-Processor Specification) Version for your system. Use this feature when you have multiple processors installed in your system. Please follow the instructions given on the screen to select the correct MPS version for your system. The options are 1.1 and **1.4**.

▶SMBIOS Configuration

SMBIOS SMI Support

Select Enabled to enable the function of SMBIOS SMI Wrapper support for PnP Func 50h-54h. The options are **Enabled** and Disabled.

▶Floppy/IDE/SATA Configuration

Select this submenu to configure Floppy, IDE and SATA settings.

ATA/IDE Configuration

This feature allows the user to configure ATA/IDE settings. The options are Disabled, Compatible and **Enhanced**.

Configure SATA As

This feature allows the user to configure the onboard SATA slots as IDE Drives, RAID Drives, or AHCI Drives. The options are IDE, RAID, and **AHCI.**

Configure Channels

This feature allows the user to decide how the BIOS should configure SATA channels. The options are Before PATA (Parallel ATA) and **Behind PATA**.

Primary IDE Master/Slave, Third IDE Master and Fourth IDE Master

These settings allow the user to set the parameters of Primary IDE Master/Slave, Third IDE Master, and Fourth IDE Master slots. Hit <Enter> to activate the following submenu items for detailed options of these items. Set the correct configurations accordingly. The items included in the submenu are the following:

Type

This feature allows the user to select the type of device connected to the system. The options are Not Installed, **Auto**, CDROM, and ARMD.

LBA/Large Mode

Logical Block Addressing (LBA) is a method of addressing data on a disk drive. In the LBA mode, the maximum drive capacity is 137 GB. For drive capacities over 137 GB, your system must be equipped with a 48-bit LBA mode addressing. If not, contact your manufacturer or install an ATA/133 IDE controller card that supports 48-bit LBA mode. The options are Disabled and **Auto**.

Block (Multi-Sector Transfer)

This feature allows the user to use the Block Mode to boost the IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if the Block Mode is not used. If the Block Mode is used, data will be transferred of up to 64 KB per interrupt. If set to Disabled, data will be transferred from and to the device one sector at a time. If set to Auto, data will be transferred from and to the device multiple sectors at a time if the device supports it. The options are **Auto** and Disabled.

PIO Mode

The IDE PIO (Programmable I/O) Mode programs timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases. The options are **Auto**, 0, 1, 2, 3, and 4. Select **Auto** to allow AMI BIOS to automatically detect the PIO mode. Use this value if the IDE disk drive support cannot be determined. Select 0 to allow AMI BIOS to use PIO mode 0. It has a data transfer rate of 3.3 MBs. Select 1 to allow AMI BIOS to use PIO mode 1. It has a data transfer rate of 5.2 MBs. Select 2 to allow AMI BIOS to use PIO mode 2. It has a data transfer rate of 8.3 MBs. Select 3 to allow AMI BIOS to use PIO mode 3. It has a data transfer rate of 11.1 MBs. Select 4 to allow AMI BIOS to use PIO mode 4. It has a data transfer rate of 16.6 MBs. This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.

DMA Mode

Select **Auto** to allow the BIOS to automatically detect the DMA mode. Use this value if the IDE disk drive support cannot be determined. Select SWDMA0 to allow the BIOS to use Single Word DMA mode 0. It has a data transfer rate of 2.1 MBs. Select SWDMA1 to allow the BIOS to use Single Word DMA mode 1. It has a data transfer rate of 4.2 MBs. Select SWDMA2 to allow the BIOS to use Single Word DMA mode 2. It has a data transfer rate of 8.3 MBs. Select MWDMA0 to allow the BIOS to use Multi Word DMA mode 0. It has a data transfer rate of 4.2 MBs. Select MWDMA1 to allow the BIOS to use Multi Word DMA mode 1. It has a data transfer rate of 13.3 MBs. Select MWDMA2 to allow the BIOS to use Multi-Word DMA mode 2. It has a data transfer rate of 16.6 MBs. Select UDMA0 to allow the BIOS to use Ultra DMA mode 0. It has a data transfer rate of 16.6 MBs. It has the same transfer rate as PIO mode 4 and Multi Word DMA mode 2. Select UDMA1 to allow the BIOS to use Ultra DMA mode 1. It has a data transfer rate of 25 MBs. Select UDMA2 to allow the BIOS to use Ultra DMA mode 2. It has a data transfer rate of 33.3 MBs. Select UDMA3 to allow the BIOS to use Ultra DMA mode 3. It has a data transfer rate of 66.6 MBs. Select UDMA4 to allow the BIOS to use Ultra DMA mode 4. It has a data transfer rate of 100 MBs. The options are **Auto**, SWDMAn, MWDMAn, and UDMAn.

S.M.A.R.T. For Hard disk drives

Self-Monitoring Analysis and Reporting Technology (SMART) can help predict impending drive failures. Select **Auto** to allow the AMIBIOS Setup Utility to automatically detect hard disk drive support. The options are Disabled, Enabled, and **Auto.**

32-Bit Data Transfer

Select Enabled to use the feature of 32-Bit data transfer. Select Disabled to disable this function. The options are **Enabled** and Disabled.

▶PCI/PnP Configuration

Warning!! Be sure to select the correct settings for your system. Wrong settings may cause the system to malfunction.

Onboard LAN1 Device/Onboard LAN2 Device

Select Enabled to activate the onboard LAN 1 or LAN 2 device. The options are **Enabled** and Disabled.

Onboard LAN 1/Onboard LAN 2 OPROM Configurations

If set to Enabled, the user is allowed to boot from LAN 1 or LAN2. The options are **Enabled** and Disabled.

Spread Spectrum

Select Enabled to enable the function of Spread Spectrum to allow the BIOS to monitor and to reduce the electromagnetic interference level that is caused by the components installed in the system. The options are **Enabled** and Disabled.

Clear NVRAM

Select Yes to clear NVRAM during system boot. The options are Yes and **No**.

Plug & Play OS

Select **Yes** to allow the OS to configure Plug & Play devices. (This is not required for system boot if your system has an OS that supports Plug & Play.) Select No to allow the AMI BIOS to configure all devices in the system.

PCI Latency Timer

This option sets the latency of all PCI devices on the PCI bus. The default setting is **64**. Select 32 to set the PCI latency to 32 PCI clock cycles. Select 64 to set the PCI latency to 64 PCI clock cycles. Select 96 to set the PCI latency to 96 PCI clock cycles. Select 128 to set the PCI latency to 128 PCI clock cycles. Select 160 to set the PCI latency to 160 PCI clock cycles. Select 192 to set the PCI latency to 192 PCI clock cycles. Select 224 to set the PCI latency to 224 PCI clock cycles. Select 248 to set the PCI latency to 248 PCI clock cycles.

Allocate IRQ to PCI VGA

Select Yes to allow the system to give the VGA adapter card an interrupt address. The options are **Yes** and No.

Palette Snooping

Select Enabled to inform the PCI devices that an ISA graphics device is installed in the system in order for the graphics card to function properly. The options are Enabled and **Disabled**.

PCI IDE BusMaster

Set this value to allow or prevent the use of PCI IDE busmastering. Select Enabled to allow the BIOS to use the PCI busmaster slot to read and write to the IDE drives. The options are **Enabled** and Disabled.

▶Advanced Chipset Control

Warning!! Be sure to select the correct settings for your system. Wrong settings may cause the system to malfunction.

The items included in the Advanced Chipset Control submenu are listed below.

▶North Bridge Configuration

This feature allows the user to configure the settings for the Intel 945GME NorthBridge chipset.

DRAM Frequency Configuration

This option allows the user to select the desired frequency setting for the onboard memory modules. The options are **Auto**, 400 MHz, 533 MHz and 667 MHz.

Boot Graphics Adapter Priority

This option allows the user to specify which graphics controller to be used as the primary boot device. The options are **IGD (Internal Graphics Device)** and PCI/IGD.

Internal Graphics Mode Select

This option allows the user to specify the amount of system memory to be used by the Internal Graphics Device. The options are **Enabled/8 MB**, Enabled/1 MB and Disabled.

▶Video Function Configuration

DVMT Mode Select

This option allows the user to set the DVMT mode. The options are Fixed Mode, **DVMT Mode** and Combo Mode.

DVMT/Fixed Memory

This option allows the user to set the amount of memory to be used for the operation of DVMT/Fixed Mode. The options are **128 MB**, 64 MB and Maximum DVMT.

▶South Bridge Configuration

This feature allows the user to configure the settings for the Intel ICH South Bridge chipset.

USB Function

This feature allows you to enable the USB Ports. The options are Disabled and **Enabled.**

Legacy USB Support

This feature allows you to enable Legacy USB support. When set to Auto, Legacy USB support will be automatically disabled if there is no USB device connected. The options are Enabled, Disable and **Auto**.

USB 2.0 Controller

This setting allows you to enable or disable the USB 2.0 Controller. The options are Disabled and **Enabled**.

USB 2.0 Controller Mode

This setting allows to configure USB 2.0 Controller to run at High Speed (480 Mbps) or Full Speed (12 Mbps). The options are Full Speed (12 Mbps) and **HiSpeed (480 Mbps)**.

▶Advanced Processor Control

Warning!! Be sure to select the correct settings for your system. Wrong settings may cause system to malfunction.

The items included in the Advanced Processor Control submenu are listed below.

Max CPUID Value Limit

This feature allows the user to set the maximum CPU ID value. Enable this function to boot the legacy operating systems that cannot support processors with extended CPUID functions. Select Disabled if you have the Windows XP OS. The options are Enabled and **Disabled**.

Execute Disable Bit (Available when supported by the OS and the CPU.)

Set to **Enabled** to enable the Execute Disable Bit to allow the processor to classify areas in the system memory where an application code can execute and where it cannot in order to prevent a worm or a virus from creating a flood of codes to overwhelm the processor and damage the system during an attack.Select Disabled if you have the Windows XP OS. **Note**: For more information, please refer to Intel's and Microsoft's web sites.

Core-Multi-Processing (Available when supported by the OS and the CPU.)

Select Enabled to use a processor's Second Core and beyond. (Please refer to Intel's web site for more information.) The options are Disabled and **Enabled.**

CPU TM Function (Available when supported by the OS and the CPU)

This feature allows the user to activate the CPU thermal monitor mechanism. TM1 allows the CPU to regulate its power consumption based upon the modulation of the CPU Internal clock when the CPU temperature reaches a pre-defined overheat threshold. Select Enabled to allow the CPU to reduce its power consumption by lowering the CPU frequency and the CPU voltage when the CPU temperature reaches a pre-defined overheat threshold. TM2 is available only when supported by the CPU. Select Disabled if you have the Windows XP OS. The options are Disabled and **Enabled**.

Intel(R) Speed Step(tm) Tech

The Intel Speedstep Technology allows the user to set the CPU speed to enhance system performance. Select Maximum Speed to allow the processor to run at the maximum speed. Select Automatic to allow the CPU speed to be controlled by the OS. If set to Disabled, the processor will run at the default speed. The options are Maximum Speed, Minimum speed, **Automatic** (controlled by OS), and Disabled.

▶Super IO Configuration

Serial Port1 Address

This option specifies the base I/O port address and the Interrupt Request address for Serial Port 1. Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable. Select 3F8/IRQ4 to allow the serial port to use 3F8 as its I/O port address and IRQ 4 for the interrupt address. The options are Disabled, **3F8/IRQ4**, 3E8/IRQ4, 2E8/IRQ3.

Serial Port2 Address

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 2. Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port physically becomes unavailable. Select 2F8/IRQ3 to allow the serial port to use 2F8 as its I/O port address and IRQ 3 for the interrupt address. The options are Disabled, **2F8/IRQ3**, 3E8/IRQ4 and 2E8/IRQ3.

▶Remote Access Configuration

You can use this screen to select options for the Remote Access Configuration. Use the up and down arrow keys to select an item. Use the <+> and <-> keys to change the value of the selected option.

Serial Port Number

This feature allows the user to select the serial port for console redirection. The options are **COM-A** and COM-B.

Base Address, IRQ

This feature allows the user to set the Base Address and IRQ settings for COM-A or COM-B. The default setting for COM-A is **3F8h, 4**. The default setting for COM-b is **2F8h, 8**.

Serial Port Mode

This feature allows the user to set the serial port mode for console redirection. The options are **115200 8, N**, 1; 57600 8, N, 1; 38400 8, N, 1; 19200 8, N, 1; and 9600 8, N, 1.

Flow Control

This feature allows the user to set the flow control for console redirection. The options are **None**, Hardware, and Software.

Redirection After BIOS POST

Select Disabled to turn off console redirection after Power_On_Self_Test (POST). Select **Always** to keep console redirection active all the time after POST. (**Note**: This setting may not be supported by some operating systems.) Select Boot Loader to keep console redirection active during POST and Boot Loader. The options are **Disabled**, Boot Loader, and Always.

Terminal Type

This feature allows the user to select the target terminal type for console redirection.The options are **ANSI**, VT100, and VT-UTF8.

VT-UTF8 Comb Key Support

Select Enabled to enable the VT-UTF8 combination key support for the ANSI/ VT100 terminals. The options are **Enabled** and Disabled.

Sredir Memory Display Delay

This feature allows the user to decide how many seconds the BIOS will wait before memory information is displayed. The options are **No Delay**, Delay 1 Sec., Delay 2 Sec., and Delay 4 Sec.

▶Event Log Configuration

Highlight this item and press <Enter> to view the contents of the event log.

View Event Log

This feature allows the user to view all unread events. Press <Enter> to view Event Log.

Mark All Events as Read

Highlight this item and press <Enter>. A submenu will display. Select OK to mark the DMI events as read. Select Cancel to cancel the selection.

Clear Event Log

This setting will clear all event logs when set to OK. The options are OK and Cancel.

▶System/Hardware Monitor

This feature allows the user to configure System/Hardware Monitoring Settings.

Hardware Health Function

Select **Enabled** to enable the Hardware Health Monitoring device. The options are **Enabled** and Disabled.

Hardware Health Beep

Select Enabled to activate the onboard Hardware Health Beep alarm to provide audio indications when an health-threatening event occurs to the system. The options are **Enabled** and Disabled.

CPU Fan Speed Alarm

Select Enabled to activate the onboard CPU Fan Speed Alarm to provide audio indications when the CPU fan speed reaches a pre-defined threshold. The options are Enabled and **Disabled**.

Case (Chassis) Fan Speed Alarm

Select Enabled to activate the onboard Chassis Fan Speed Alarm to provide audio indications when the chassis fan speed reaches a pre-defined threshold. The options are Enabled and **Disabled**.

In addition to the Hardware Health Monitoring features mentioned above, the AMI BIOS automatically monitors the following items and displays the status of each item below:

CPU Temperature, System Temperature1, System Temperature2*, Fan1/CPU Fan Speed, Fan2/Case Fan Speed

CPU Vcore, DIMM Vin,+3.3Vin, +5Vin, +12Vin, -12Vin, +1.5Vin, +5VSB (Standby), VBAT

Note: In the Windows OS environment, the Supero Doctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

▶Trusted Computing

TCG/TPM (Trusted Platform Modules)

Select Yes to enable TPM/TCG (TPM 1.1.1.2) support in BIOS to improve data integrity and network security. The options are Yes and **No**.

When TCG/TPM Support is set to Yes, the following items will display in the submenu.

TPM Enable/Disable Status

When the TCG/TPM support is enabled, AMI BIOS will display the status of TPM Enable/Disable Status.

TPM Owner State (Available when the item above is enabled)

When the TCG/TPM support is enabled, AMI BIOS will display the status of TPM Owner Status.

4-4 Security Settings

AMI BIOS provides a Supervisor password and a User password. If you use both passwords, the Supervisor password must be set first.

Supervisor Password

This feature allows the user to set a Supervisor Password.

User Password

This feature allows the user to set a User Password.

Change Supervisor Password

Select this option and press <Enter> to access the submenu, and type a new Supervisor password in the field.

Change User Password

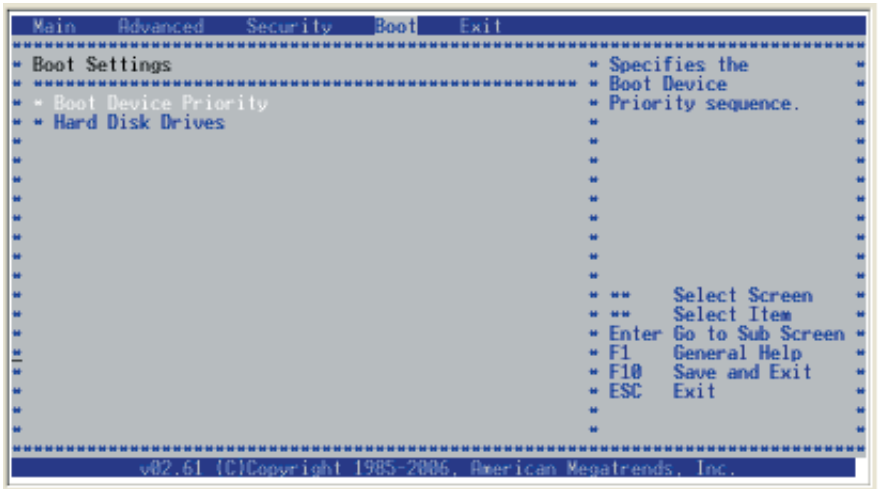
Select this option and press <Enter> to access the submenu , and type a new User password in the field.

Boot Sector Virus Protection

This option is near the bottom of the Security Setup screen. When Enabled, the AMI BIOS displays a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. The options are Enabled and **Disabled**.

4-5 Boot Settings

This feature allows the user to configure Boot Settings.



▶Boot Device Priority

This feature allows the user to specify the sequence of priority for the Boot Device.

The default settings are:

· 1st boot device – Network: IBA GE Slot

· 2nd boot device – SATA:3M-WDC WD 2500

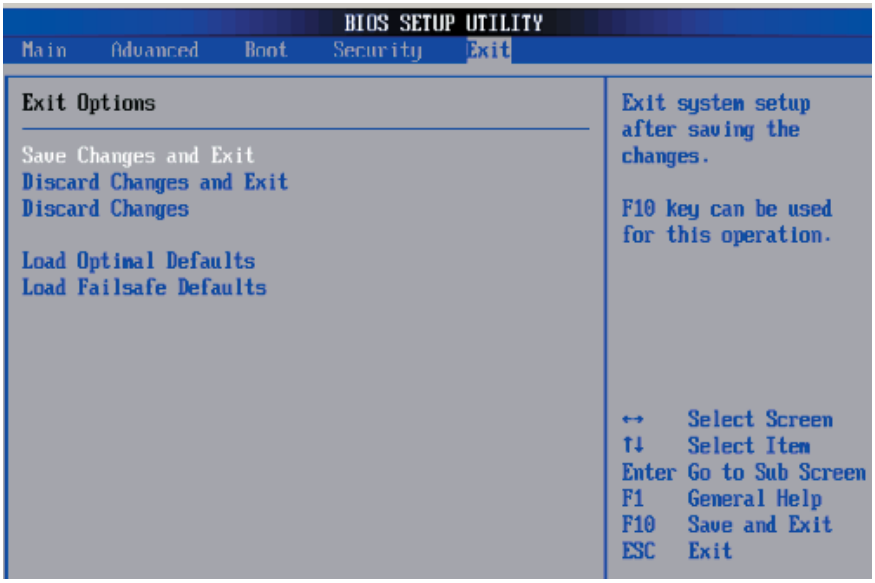
▶Hard Disk Drives

This feature allows the user to specify the boot sequence from available Hard Drives.

· 1st boot device – SATA:3M-WDC WD 2500

4-6 Exit Options

Select the Exit tab from the AMI BIOS Setup Utility screen to enter the Exit BIOS Setup screen.



Save Changes and Exit

When you have completed the system configuration, select this option and press <Enter> to save the changes you've made and exit from the BIOS Setup utility. After system reboot, the new system configuration settings will take effect.

Discard Changes and Exit

Select this option to quit the BIOS Setup without making any changes to the system configuration.

Discard Changes

Select this option and press <Enter> to discard all the changes you've made and return to the AMI BIOS utility.

Load Optimal Defaults

To load the Optimal Default settings, select Load Optimal defaults settings and press <Enter>. Then, select OK to allow AMI BIOS to automatically load optimal defaults to the BIOS Settings. The Optimal settings are designed to maximize system performance, but it may not work best for some computer applications.

Load Fail-Safe Defaults

Select this item and press <Enter> to load Fail-Safe default settings. The Fail-Safe settings are designed for maximum system stability, but it might not provide maximum system performance.

Appendix A

BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

Fatal errors are those which will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list, on the following page, correspond to the number of beeps for the corresponding error.

BIOS Error Beep Codes

Beep Code	Error Message	Description
1 beep	Refresh	Circuits have been reset. (Ready to power up)
5 short beeps, 1 long beep	Memory error	No memory detected in the system
8 beeps	Display memory read/write error	Video adapter missing or with faulty memory
1 continuous beep (with the front panel OH LED on)	System Overheat	1 continuous beep with the front panel OH LED on)

Notes

Appendix B

BIOS POST Checkpoint Codes

When AMIBIOS performs the Power On Self Test, it writes checkpoint codes to I/O port 0080h. If the computer cannot complete the boot process, diagnostic equipment can be attached to the computer to read I/O port 0080h.

B-1 Uncompressed Initialization Codes

The uncompressed initialization checkpoint codes are listed in order of execution:

Checkpoint	Code Description
D0h	The NMI is disabled. Power on delay is starting. Next, the initialization code checksum will be verified.
D1h	Initializing the DMA controller, performing the keyboard controller BAT test, starting memory refresh and entering 4 GB flat mode next.
D3h	Starting memory sizing next.
D4h	Returning to real mode. Executing any OEM patches and setting the Stack next.
D5h	Passing control to the uncompressed code in shadow RAM at E000:0000h. The initialization code is copied to segment 0 and control will be transferred to segment 0.
D6h	Control is in segment 0. Next, checking if <Ctrl> <Home> was pressed and verifying the system BIOS checksum. If either <Ctrl> <Home> was pressed or the system BIOS checksum is bad, next will go to checkpoint code E0h. Otherwise, going to checkpoint code D7h.

B-2 Bootblock Recovery Codes

The bootblock recovery checkpoint codes are listed in order of execution:

Checkpoint	Code Description
E0h	The onboard floppy controller if available is initialized. Next, beginning the base 512 KB memory test.
E1h	Initializing the interrupt vector table next.
E2h	Initializing the DMA and Interrupt controllers next.
E6h	Enabling the floppy drive controller and Timer IRQs. Enabling internal cache memory.
Edh	Initializing the floppy drive.
Eeh	Looking for a floppy diskette in drive A:. Reading the first sector of the diskette.
Efh	A read error occurred while reading the floppy drive in drive A:.
F0h	Next, searching for the AMIBOOT.ROM file in the root directory.
F1h	The AMIBOOT.ROM file is not in the root directory.
F2h	Next, reading and analyzing the floppy diskette FAT to find the clusters occupied by the AMIBOOT.ROM file.
F3h	Next, reading the AMIBOOT.ROM file, cluster by cluster.
F4h	The AMIBOOT.ROM file is not the correct size.
F5h	Next, disabling internal cache memory.
FBh	Next, detecting the type of flash ROM.
FCh	Next, erasing the flash ROM.
FDh	Next, programming the flash ROM.
FFh	Flash ROM programming was successful. Next, restarting the system BIOS.

B-3 Uncompressed Initialization Codes

The following runtime checkpoint codes are listed in order of execution.

These codes are uncompressed in F0000h shadow RAM.

Checkpoint	Code Description
03h	The NMI is disabled. Next, checking for a soft reset or a power on condition.
05h	The BIOS stack has been built. Next, disabling cache memory.
06h	Uncompressing the POST code next.
07h	Next, initializing the CPU and the CPU data area.
08h	The CMOS checksum calculation is done next.
0Ah	The CMOS checksum calculation is done. Initializing the CMOS status register for date and time next.
0Bh	The CMOS status register is initialized. Next, performing any required initialization before the keyboard BAT command is issued.
0Ch	The keyboard controller input buffer is free. Next, issuing the BAT command to the keyboard controller.
0Eh	The keyboard controller BAT command result has been verified. Next, performing any necessary initialization after the keyboard controller BAT command test.
0Fh	The initialization after the keyboard controller BAT command test is done. The keyboard command byte is written next.
10h	The keyboard controller command byte is written. Next, issuing the Pin 23 and 24 blocking and unblocking command.
11h	Next, checking if <End or <Ins> keys were pressed during power on. Initializing CMOS RAM if the Initialize CMOS RAM in every boot AMIBIOS POST option was set in AMIBCP or the <End> key was pressed.
12h	Next, disabling DMA controllers 1 and 2 and interrupt controllers 1 and 2.
13h	The video display has been disabled. Port B has been initialized. Next, initializing the chipset.
14h	The 8254 timer test will begin next.
19h	Next, programming the flash ROM.
1Ah	The memory refresh line is toggling. Checking the 15 second on/off time next.
2Bh	Passing control to the video ROM to perform any required configuration before the video ROM test.
2Ch	All necessary processing before passing control to the video ROM is done. Looking for the video ROM next and passing control to it.
2Dh	The video ROM has returned control to BIOS POST. Performing any required processing after the video ROM had control
23h	Reading the 8042 input port and disabling the MEGAKEY Green PC feature next. Making the BIOS code segment writable and performing any necessary configuration before initializing the interrupt vectors.
24h	The configuration required before interrupt vector initialization has completed. Interrupt vector initialization is about to begin.

Checkpoint	Code Description
25h	Interrupt vector initialization is done. Clearing the password if the POST DIAG switch is on.
27h	Any initialization before setting video mode will be done next.
28h	Initialization before setting the video mode is complete. Configuring the monochrome mode and color mode settings next.
2Ah	Bus initialization system, static, output devices will be done next, if present. See the last page for additional information.
2Eh	Completed post-video ROM test processing. If the EGA/VGA controller is not found, performing the display memory read/write test next.
2Fh	The EGA/VGA controller was not found. The display memory read/write test is about to begin.
30h	The display memory read/write test passed. Look for retrace checking next.
31h	The display memory read/write test or retrace checking failed. Performing the alternate display memory read/write test next.
32h	The alternate display memory read/write test passed. Looking for alternate display retrace checking next.
34h	Video display checking is over. Setting the display mode next.
37h	The display mode is set. Displaying the power on message next.
38h	Initializing the bus input, IPL, general devices next, if present. See the last page of this chapter for additional information.
39h	Displaying bus initialization error messages. See the last page of this chapter for additional information.
3Ah	The new cursor position has been read and saved. Displaying the Hit <DEL> message next.
3Bh	The Hit <DEL> message is displayed. The protected mode memory test is about to start.
40h	Preparing the descriptor tables next.
42h	The descriptor tables are prepared. Entering protected mode for the memory test next.
43h	Entered protected mode. Enabling interrupts for diagnostics mode next.
44h	Interrupts enabled if the diagnostics switch is on. Initializing data to check memory wraparound at 0:0 next.
45h	Data initialized. Checking for memory wraparound at 0:0 and finding the total system memory size next.
46h	The memory wraparound test is done. Memory size calculation has been done. Writing patterns to test memory next.
47h	The memory pattern has been written to extended memory. Writing patterns to the base 640 KB memory next.
48h	Patterns written in base memory. Determining the amount of memory below 1 MB next.
49h	The amount of memory below 1 MB has been found and verified.
4Bh	The amount of memory above 1 MB has been found and verified. Checking for a soft reset and clearing the memory below 1 MB for the soft reset next. If this is a power on situation, going to checkpoint 4Eh next.

Checkpoint	Code Description
4Ch	The memory below 1 MB has been cleared via a soft reset. Clearing the memory above 1 MB next.
4Dh	The memory above 1 MB has been cleared via a soft reset. Saving the memory size next. Going to checkpoint 52h next.
4Eh	The memory test started, but not as the result of a soft reset. Displaying the first 64 KB memory size next.
4Fh	The memory size display has started. The display is updated during the memory test. Performing the sequential and random memory test next.
50h	The memory below 1 MB has been tested and initialized. Adjusting the displayed memory size for relocation and shadowing next.
51h	The memory size display was adjusted for relocation and shadowing.
52h	The memory above 1 MB has been tested and initialized. Saving the memory size information next.
53h	The memory size information and the CPU registers are saved. Entering real mode next.
54h	Shutdown was successful. The CPU is in real mode. Disabling the Gate A20 line, parity, and the NMI next.
57h	The A20 address line, parity, and the NMI are disabled. Adjusting the memory size depending on relocation and shadowing next.
58h	The memory size was adjusted for relocation and shadowing. Clearing the Hit <DEL> message next.
59h	The Hit <DEL> message is cleared. The <WAIT...> message is displayed. Starting the DMA and interrupt controller test next.
60h	The DMA page register test passed. Performing the DMA Controller 1 base register test next.
62h	The DMA controller 1 base register test passed. Performing the DMA controller 2 base register test next.
65h	The DMA controller 2 base register test passed. Programming DMA controllers 1 and 2 next.
66h	Completed programming DMA controllers 1 and 2. Initializing the 8259 interrupt controller next.
67h	Completed 8259 interrupt controller initialization.
7Fh	Extended NMI source enabling is in progress.
80h	The keyboard test has started. Clearing the output buffer and checking for stuck keys. Issuing the keyboard reset command next.
81h	A keyboard reset error or stuck key was found. Issuing the keyboard controller interface test command next.
82h	The keyboard controller interface test completed. Writing the command byte and initializing the circular buffer next.
83h	The command byte was written and global data initialization has completed. Checking for a locked key next.
84h	Locked key checking is over. Checking for a memory size mismatch with CMOS RAM data next.
85h	The memory size check is done. Displaying a soft error and checking for a password or bypassing WINBIOS Setup next.

Checkpoint	Code Description
86h	The password was checked. Performing any required programming before WINBIOS Setup next.
87h	The programming before WINBIOS Setup has completed. Uncompressing the WINBIOS Setup code and executing the AMIBIOS Setup or WINBIOS Setup utility next.
88h	Returned from WINBIOS Setup and cleared the screen. Performing any necessary programming after WINBIOS Setup next.
89h	The programming after WINBIOS Setup has completed. Displaying the power on screen message next.
8Ch	Programming the WINBIOS Setup options next.
8Dh	The WINBIOS Setup options are programmed. Resetting the hard disk controller next.
8Fh	The hard disk controller has been reset. Configuring the floppy drive controller next.
91h	The floppy drive controller has been configured. Configuring the hard disk drive controller next.
95h	Initializing the bus option ROMs from C800 next. See the last page of this chapter for additional information.
96h	Initializing before passing control to the adaptor ROM at C800.
97h	Initialization before the C800 adaptor ROM gains control has completed. The adaptor ROM check is next.
98h	The adaptor ROM had control and has now returned control to BIOS POST. Performing any required processing after the option ROM returned control.
99h	Any initialization required after the option ROM test has completed. Configuring the timer data area and printer base address next.
9Ah	Set the timer and printer base addresses. Setting the RS-232 base address next.
9Bh	Returned after setting the RS-232 base address. Performing any required initialization before the Coprocessor test next.
9Ch	Required initialization before the Coprocessor test is over. Initializing the Coprocessor next.
9Dh	Coprocessor initialized. Performing any required initialization after the Coprocessor test next.
9Eh	Initialization after the Coprocessor test is complete. Checking the extended keyboard, keyboard ID, and Num Lock key next. Issuing the keyboard ID command next.
A2h	Displaying any soft errors next.
A3h	The soft error display has completed. Setting the keyboard typematic rate next.
A4h	The keyboard typematic rate is set. Programming the memory wait states next.
A5h	Memory wait state programming is over. Clearing the screen and enabling parity and the NMI next.
A7h	NMI and parity enabled. Performing any initialization required before passing control to the adaptor ROM at E000 next.
A8h	Initialization before passing control to the adaptor ROM at E000h completed. Passing control to the adaptor ROM at E000h next.

Checkpoint	Code Description
A9h	Returned from adaptor ROM at E000h control. Performing any initialization required after the E000 option ROM had control next.
Aah	Initialization after E000 option ROM control has completed. Displaying the system configuration next.
Abh	Uncompressing the DMI data and executing DMI POST initialization next.
B0h	The system configuration is displayed.
B1h	Copying any code to specific areas.
00h	Code copying to specific areas is done. Passing control to INT 19h boot loader next.

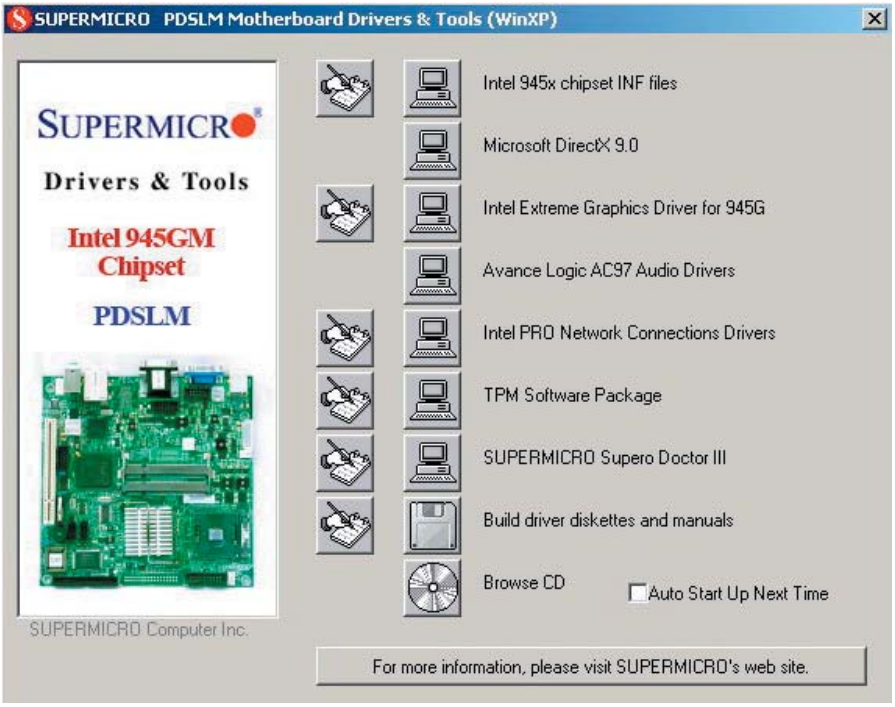
Notes

Appendix C

Installing Software Programs and Drivers

C-1 Installing Software Programs and Drivers

After you've installed the Windows Operating System, a screen as shown below will appear. You are ready to install software programs and drivers that have not yet been installed. To install these software programs and drivers, click the icons to the right of these items.



Driver/Tool Installation Display Screen

Note: Click the icons showing a hand writing on the paper to view the readme files for each item. Click the computer icon to the right of an item to install an item one at a time (from top to bottom). **After installing each item, you must re-boot the system before proceeding with the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents of the CD.

C-2 Configuring Supero Doctor III

The Supero Doctor III program is a Web-base management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called the SD III Client. The Supero Doctor III program included on the CDROM that came with your motherboard allows you to monitor the environment and operations of your system. Supero Doctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the Supero Doctor III interface.

Note 1: Both default user name and password are ADMIN.

Note 2: In the Windows OS environment, the Supero Doctor III settings take precedence over the BIOS settings. When first installed, Supero Doctor III adopts the temperature threshold settings previously set in the BIOS. Any subsequent changes to these thresholds must be made within Supero Doctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in the BIOS.

Supero Doctor III Interface Display Screen-I (Health Information)

Supero Doctor III Interface Display Screen-II (Remote Control)

Note: SD III Software Revision 1.0 can be downloaded from our Web site at: ftp://ftp.supermicro.com/utility/Supero_Doctor_III/. You can also download the SDIII User's Guide at http://www.supermicro.com/PRODUCT/Manuals/SDIII/UserGuide.pdf. For Linux, we will still recommend that you use the Supero Doctor II Utility.

Notes

(Disclaimer continued)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.